Colour Television **Chassis**

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Service
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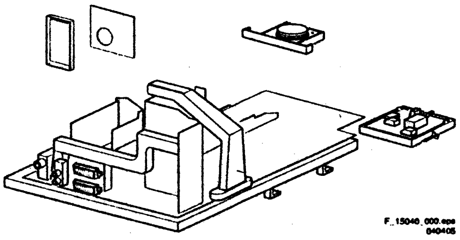

Service Manual

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PHILIPS

1. Technical Specifications, Connections, and Chassis Overview

Index of this chapter:

1.1 Technical Specifications
1.2 Connection Overview
1.3 Chassis Overview

Note: Data below can deviate slightly from the actual situation, due to the different set executions.

1.1 Technical Specifications

1.1.1 Vision

Display type	: CRT, DV, RF
Screen size	: 28" (70 cm), 4:3
	: 28" (70 cm), 16:9
	: 29" (72 cm), 4:3
	: 32" (82 cm), 16:9
Tuning system	: PLL
TV Colour systems	: PAL B/G, D/K, I
	: SECAM B/G, D/K, L/L'
Video playback	: NTSC M/N 3.58, 4.43
	: PAL B/G
	: SECAM L/L'
Presets/channels	: 100/125 presets
Tuner bands	: VHF
	: UHF
	: S-band
	: Hyper-band

1.1.2 Sound

Sound systems	: FM-mono
	: AM-mono
	: FM-stereo B/G
	: NICAM B/G, D/K, I, L
	: AV Stereo
Maximum power (W_{RMS})	: 2 x 10

1.1.3 Miscellaneous

Power supply:	
- Mains voltage (V_{AC})	: 230
- Mains frequency (Hz)	: 50 / 60
Ambient conditions:	
- Temperature range (°C)	: -5 to +40
- Maximum humidity	: 95% R.H.
Power consumption	
- Normal operation (W)	: ≈ 160
- Stand-by (W)	: < 1
Dimensions (WxHxD cm)	: ?x?x?
Weight (kg)	: ?

1.2 Connection Overview

Note: The following connector colour abbreviations are used (acc. to DIN/IEC 757): Bk= Black, Bu= Blue, Gn= Green, Gy= Grey, Rd= Red, Wh= White, and Ye= Yellow.

1.2.1 Front / Side Connections

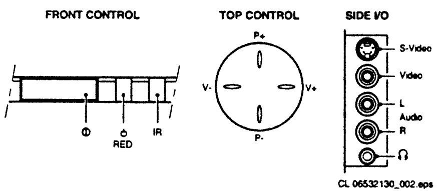

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Figure 1-1 Front and top control, side I/O connections

Cinch: Video CVBS - In, Audio - In

Ye	- Video CVBS	1 V_{PP} / 75 ohm	→⊖◎
Wh	- Audio L	0.5 V_{RMS} / 10 kohm	→⊖◎
Rd	- Audio R	0.5 V_{RMS} / 10 kohm	→⊖◎

SVHS (Hosiden): Video Y/C - In

1	- Ground Y	Gnd	⏚
2	- Ground C	Gnd	⏚
3	- Video Y	1 V_{PP} / 75 ohm	→⊖
4	- Video C	0.3 V_{PP}P / 75 ohm	→⊖

Mini Jack: Audio Headphone - Out

Bk	- Head phone	32 - 600 ohm / 10 mW	◎🎧

1.2.2 Rear Connections

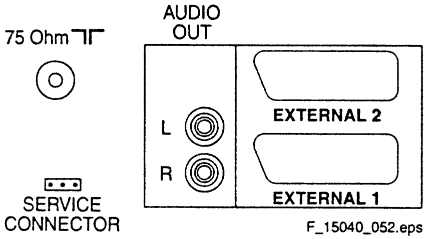

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Figure 1-2 Rear connections

Aerial - In

-	- IEC-type (EU)	Coax, 75 ohm	⊤

Cinch: Video CVBS - Out, Audio - Out

Ye	- Video CVBS	1 V_{PP} / 75 ohm	⊖→◎
Wh	- Audio L	0.5 V_{RMS} /10 kohm	⊖→◎
Rd	- Audio R	0.5 V_{RMS} / 10 kohm	⊖→◎

Service Connector (ComPair)

1	- SDA-S	I^2C Data (0 - 5 V)	→⊖⊖→
2	- SCL-S	I^2C Clock (0 - 5 V)	→⊖
3	- Ground	Gnd	⏚

EXT1: Video RGB - In, CVBS - In/Out, Audio - In/Out

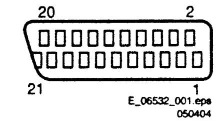

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Figure 1-3 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm	⊖→
2	- Audio R	0.5 V_{RMS} / 10 kohm	→⊖
3	- Audio L	0.5 V_{RMS} / 1 kohm	⊖→
4	- Ground Audio	Gnd	⏚
5	- Ground Blue	Gnd	⏚
6	- Audio L	0.5 V_{RMS} / 10 kohm	→⊖
7	- Video Blue/U	0.7 V_{PP} / 75 ohm	→⊖
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	→⊖
9	- Ground Green	Gnd	⏚
10	- n.c.		
11	- Video Green/Y	0.7 V_{PP} / 75 ohm	→⊖
12	- n.c.		
13	- Ground Red	Gnd	⏚
14	- Ground FBL	Gnd	⏚
15	- Video Red/V	0.7 V_{PP} / 75 ohm	→⊖
16	- Status/FBL	0 - 0.4 V: INT 1 - 3 V: EXT / 75 ohm	→⊖
17	- Ground Video	Gnd	⏚
18	- Ground Video	Gnd	⏚
19	- Video CVBS	1 V_{PP} / 75 ohm	⊖→
20	- Video CVBS	1 V_{PP} / 75 ohm	→⊖
21	- Shield	Gnd	⏚

EXT2: Video YC - In, CVBS - In/Out, Audio - In/Out

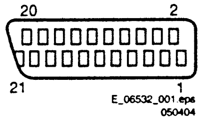

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Figure 1-4 SCART connector

1	- Audio R	0.5 V_{RMS} / 1 kohm	⊖→
2	- Audio R	0.5 V_{RMS} / 10 kohm	→⊖
3	- Audio L	0.5 V_{RMS} / 1 kohm	⊖→
4	- Ground Audio	Gnd	⏚
5	- Ground Blue	Gnd	⏚
6	- Audio L	0.5 V_{RMS} / 10 kohm	→⊖
7	- C-FRONT	0.7 V_{PP} / 75 ohm	→⊖
8	- Function Select	0 - 2 V: INT 4.5 - 7 V: EXT 16:9 9.5 - 12 V: EXT 4:3	→⊖
9	- Ground Green	Gnd	⏚
10	- Easylink P50	0 - 5 V / 4.7 kohm	→⊖⊖→
11	- n.c.		
12	- n.c.		
13	- Ground Red	Gnd	⏚
14	- Ground Data	Gnd	⏚
15	- C	0.7 V_{PP} / 75 ohm	→⊖
16	- n.c.		
17	- Ground Video	Gnd	⏚
18	- Ground FBL	Gnd	⏚
19	- Video CVBS	1 V_{PP} / 75 ohm	⊖→
20	- Video CVBS/Y	1 V_{PP} / 75 ohm	→⊖
21	- Shield	Gnd	⏚

1.3 Chassis Overview

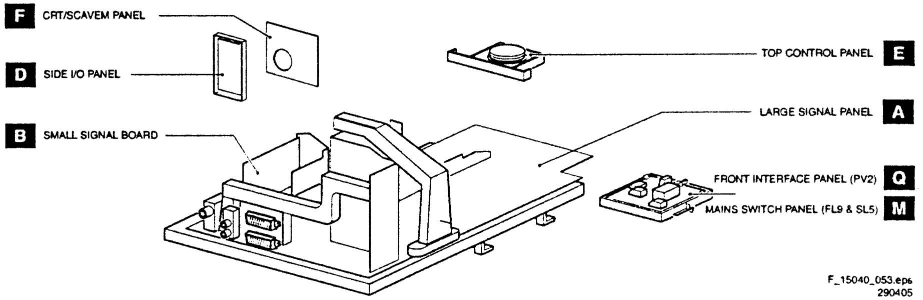

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Figure 1-5 PWB location

2. Safety Instructions, Warnings, and Notes

Index of this chapter:

2.1 Safety Instructions
2.2 Maintenance Instructions
2.3 Warnings
2.4 Notes

2.1 Safety Instructions

Safety regulations require the following **during** a repair:

- Connect the set to the Mains (AC Power) via an isolation transformer (> 800 VA).
- Replace safety components, indicated by the symbol ⚠, only by components identical to the original ones. Any other component substitution (other than original type) may increase risk of fire or electrical shock hazard.
- Wear safety goggles when you replace the CRT.

Safety regulations require that **after** a repair, the set must be returned in its original condition. Pay in particular attention to the following points:

- General repair instruction: as a strict precaution, we advise you to re-solder the solder connections through which the horizontal deflection current flows. In particular this is valid for the:
  1. Pins of the line output transformer (LOT).
  2. Fly-back capacitor(s).
  3. S-correction capacitor(s).
  4. Line output transistor.
  5. Pins of the connector with wires to the deflection coil.
  6. Other components through which the deflection current flows.

Note: This re-soldering is advised to prevent bad connections due to metal fatigue in solder connections, and is therefore only necessary for television sets more than two years old.

- Route the wire trees and EHT cable correctly and secure them with the mounted cable clamps.
- Check the insulation of the Mains (AC Power) lead for external damage.
- Check the strain relief of the mains (AC Power) cord for proper function, to prevent the cord from touching the CRT, hot components, or heat sinks.
- Check the electrical DC resistance between the Mains (AC Power) plug and the secondary side (only for sets that have a Mains (AC Power) isolated power supply):
  1. Unplug the Mains (AC Power) cord and connect a wire between the two pins of the Mains (AC Power) plug.
  2. Set the Mains (AC Power) switch to the "on" position (keep the Mains (AC Power) cord unplugged!).
  3. Measure the resistance value between the pins of the Mains (AC Power) plug and the metal shielding of the tuner or the aerial connection on the set. The reading should be between 4.5 Mohm and 12 Mohm.
  4. Switch "off" the set, and remove the wire between the two pins of the Mains (AC Power) plug.
- Check the cabinet for defects, to prevent touching of any inner parts by the customer.

2.2 Maintenance Instructions

We recommend a maintenance inspection carried out by qualified service personnel. The interval depends on the usage conditions:

- When a customer uses the set under normal circumstances, for example in a living room, the recommended interval is three to five years.
- When a customer uses the set in an environment with higher dust, grease, or moisture levels, for example in a kitchen, the recommended interval is one year.
- The maintenance inspection includes the following actions:
  1. Perform the "general repair instruction" noted above.
  2. Clean the power supply and deflection circuitry on the chassis.
  3. Clean the picture tube panel and the neck of the picture tube.

2.3 Warnings

- In order to prevent damage to ICs and transistors, avoid all high voltage flashovers. In order to prevent damage to the picture tube, use the method shown in figure "Discharge picture tube", to discharge the picture tube. Use a high voltage probe and a multi-meter (position V_{DC}). Discharge until the meter reading is 0 V (after approx. 30 s).

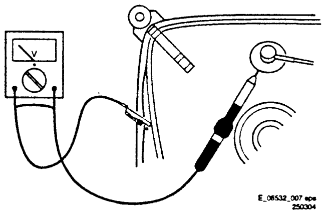


Figure 2-1 Discharge picture tube

- All ICs and many other semiconductors are susceptible to electrostatic discharges (ESD ⚠). Careless handling during repair can reduce life drastically. Make sure that, during repair, you are connected with the same potential as the mass of the set by a wristband with resistance. Keep components and tools also at this same potential. Available ESD protection equipment:
  - Complete kit ESD3 (small tablemat, wristband, connection box, extension cable and earth cable) 4822 310 10671.
  - Wristband tester 4822 344 13999.
- Be careful during measurements in the high voltage section.
- Never replace modules or other components while the unit is switched "on".
- When you align the set, use plastic rather than metal tools. This will prevent any short circuits and prevents circuits from becoming unstable.

2.4 Notes

2.4.1 General

- Measure the voltages and waveforms with regard to the chassis (= tuner) ground (⏚), or hot ground (⏚), depending on the tested area of circuitry. The voltages and waveforms shown in the diagrams are indicative. Measure them in the Service Default Mode (see chapter 5) with a colour bar signal and stereo sound (L: 3 kHz, R: 1 kHz unless stated otherwise) and picture carrier at 475.25 MHz for PAL, or 61.25 MHz for NTSC (channel 3).
- Where necessary, measure the waveforms and voltages with (⏉) and without (⏉̸) aerial signal. Measure the voltages in the power supply section both in normal operation (⏼) and in stand-by (⏻). These values are indicated by means of the appropriate symbols.
- The semiconductors indicated in the circuit diagram and in the parts lists, are interchangeable per position with the semiconductors in the unit, irrespective of the type indication on these semiconductors.

- Manufactured under license from Dolby Laboratories. "Dolby", "Pro Logic" and the "double-D symbol", are trademarks of Dolby Laboratories.

2.4.2 Schematic Notes

- All resistor values are in ohms, and the value multiplier is often used to indicate the decimal point location (e.g. 2K2 indicates 2.2 kohm).
- Resistor values with no multiplier may be indicated with either an "E" or an "R" (e.g. 220E or 220R indicates 220 ohm).
- All capacitor values are given in micro-farads (μ= x10^{-6}), nano-farads (n= x10^{-9}), or pico-farads (p= x10^{-12}).
- Capacitor values may also use the value multiplier as the decimal point indication (e.g. 2p2 indicates 2.2 pF).
- An "asterisk" (*) indicates component usage varies. Refer to the diversity tables for the correct values.
- The correct component values are listed in the Spare Parts List. Therefore, always check this list when there is any doubt.

2.4.3 Rework on BGA (Ball Grid Array) ICs

General

Although (LF)BGA assembly yields are very high, there may still be a requirement for component rework. By rework, we mean the process of removing the component from the PWB and replacing it with a new component. If an (LF)BGA is removed from a PWB, the solder balls of the component are deformed drastically so the removed (LF)BGA has to be discarded.

Device Removal

As is the case with any component that is being removed, it is essential when removing an (LF)BGA, that the board, tracks, solder lands, or surrounding components are not damaged. To remove an (LF)BGA, the board must be uniformly heated to a temperature close to the reflow soldering temperature. A uniform temperature reduces the risk of warping the PWB.
To do this, we recommend that the board is heated until it is certain that all the joints are molten. Then carefully pull the component off the board with a vacuum nozzle. For the appropriate temperature profiles, see the IC data sheet.

Area Preparation

When the component has been removed, the vacant IC area must be cleaned before replacing the (LF)BGA.
Removing an IC often leaves varying amounts of solder on the mounting lands. This excessive solder can be removed with either a solder sucker or solder wick. The remaining flux can be removed with a brush and cleaning agent.
After the board is properly cleaned and inspected, apply flux on the solder lands and on the connection balls of the (LF)BGA.
Note: Do not apply solder paste, as this has been shown to result in problems during re-soldering.

Device Replacement

The last step in the repair process is to solder the new component on the board. Ideally, the (LF)BGA should be aligned under a microscope or magnifying glass. If this is not possible, try to align the (LF)BGA with any board markers.
So as not to damage neighbouring components, it may be necessary to reduce some temperatures and times.

More Information

For more information on how to handle BGA devices, visit this URL: *www.atyourservice.ce.philips.com* (needs subscription, not available for all regions). After login, select "Magazine", then go to "Workshop Information". Here you will find Information on how to deal with BGA-ICs.

2.4.4 Lead-free Solder

Philips CE is producing lead-free sets (PBF) from 1.1.2005 onwards.

Identification: The bottom line of a type plate gives a 14-digit serial number. Digits 5 and 6 refer to the production year, digits 7 and 8 refer to production week (in example below it is 1991 week 18).

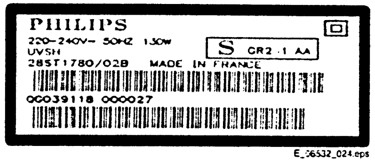


Figure 2-2 Serial number example

Regardless of the special lead-free logo (which is not always indicated), one must treat all sets from this date onwards according to the rules as described below.

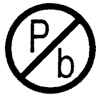


Figure 2-3 Lead-free logo

Due to lead-free technology some rules have to be respected by the workshop during a repair:

- Use only lead-free soldering tin Philips SAC305 with order code 0622 149 00106. If lead-free solder paste is required, please contact the manufacturer of your soldering equipment. In general, use of solder paste within workshops should be avoided because paste is not easy to store and to handle.
- Use only adequate solder tools applicable for lead-free soldering tin. The solder tool must be able:
  - To reach a solder-tip temperature of at least 400°C.
  - To stabilise the adjusted temperature at the solder-tip.
  - To exchange solder-tips for different applications.
- Adjust your solder tool so that a temperature of around 360°C - 380°C is reached and stabilised at the solder joint. Heating time of the solder-joint should not exceed ~ 4 sec. Avoid temperatures above 400°C, otherwise wear-out of tips will increase drastically and flux-fluid will be destroyed. To avoid wear-out of tips, switch "off" unused equipment or reduce heat.
- Mix of lead-free soldering tin/parts with leaded soldering tin/parts is possible but PHILIPS recommends strongly to **avoid** mixed regimes. If this cannot be avoided, carefully clean the solder-joint from old tin and re-solder with new tin.
- Use only original spare-parts listed in the Service-Manuals. Not listed standard material (commodities) has to be purchased at external companies.
- Special information for lead-free BGA ICs: these ICs will be delivered in so-called "dry-packaging" to protect the IC against moisture. This packaging may only be opened shortly before it is used (soldered). Otherwise the body of the IC gets "wet" inside and during the heating time the structure of the IC will be destroyed due to high (steam-) pressure inside the body. If the packaging was opened before usage, the IC has to be heated up for some hours (around 90°C) for drying (think of ESD-protection!).
Do not re-use BGAs at all!

4. Mechanical Instructions

Index of this chapter:

4.1 Service Connector (for ComPair)
4.2 Set Disassembly
4.3 Service Positions
4.4 Assy / Board Removal
4.5 Set Re-assembly

Note: Figures below can deviate slightly from the actual situation, due to the different set executions.

4.1 Service Connector (for ComPair)

For service diagnostics with ComPair, it is not necessary to disassemble the set. You only have to connect the ComPair interface box, via the appropriate cable, to the service connector (on the rear of the set, see figure 1-2), and start the program (see also chapter 5 "Service Modes, Error Codes, and Fault Finding ").

4.2 Set Disassembly

Follow the disassemble instructions in described order.

4.2.1 Rear Cover Removal

Warning: disconnect the mains power cord before you remove the rear cover.

1. Remove all the fixation screws of the rear cover.
2. Now the rear cover can be removed.

4.3 Service Positions

This chassis has several predefined service positions, for better accessibility. They are explained below in more detail.

4.3.1 Large Signal Panel (LSP)

Component Side LSP

For better accessibility of the LSP, do the following (see Figure "Service position 1"):

1. Simultanuously do the following: a) pull the two plastic locking handles at the mid left and mid right side of the bracket gently backwards to unlock the bracket, and b) loosen the bracket from the bottom tray, by pulling it backwards. N.B.: You do not need to pull the other two locking handles backwards.
2. Remove the LSP-bracket from the bottom tray by lifting it upwards.
3. Hook the bracket in the first row of fixation holes of the bottom tray. In other words, reposition the bracket from [1] to [2].

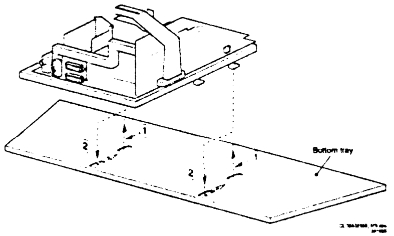


Figure 4-1 Service position 1

Solder Side LSP

To get access to the bottom side (solder side) of the LSP, do the following (see figure 4-1):

1. Remove the connector of the mains cable (coming from the mains switch-module) from the LSP.
2. Remove the cable (connector) from the side I/O panel.
3. Release some wiring from their fixation clamps, in order to get room for repositioning the LSP.
4. Flip the LSP 90 degrees clockwise [2], and place it in the fixation hole at the left side of the bottom tray [3].
5. Push the LSP forward to fix it. (Alternatively, the LSP may also be placed on your work bench without being positioned in its fixation hole, or it may even be removed from the bracket for better accessibility, see "Assy / Board Removal: Large Signal Panel (LSP)" on the next pages.)

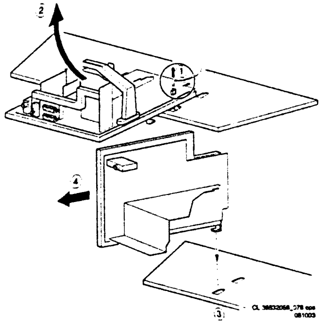


Figure 4-2 Service position 2

4.3.2 Small Signal Board (SSB)

In fact, there is no predefined service position for the SSB. Most test points are located on the A-side (side that is facing the tuner). If you have to replace ICs, you must take the complete SSB module out of the SIMM-connector.

Notes:

- For better access to the SSB, it is possible to order an "extension tool" with cables. You can use this service extension tool to connect a Small Signal Board (SSB) of an ES1E, A02, A10, or EMG (EMx) chassis, via two "IDE" cables to the SIMM connector in the set. In this way, you can service the SSB more easily outside the TV set. You can order this tool under 12nc: 9965 000 14526.
- If necessary for the measurement, you can put the LSP in "service position 2" (as described above).

4.4 Assy / Board Removal

Sometimes, it can be necessary to swap a complete assy or Printed Wiring Board (PWB). How that can be done is explained below.

4.4.1 Top Control Assy/Panel

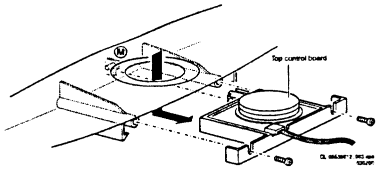


Figure 4-3 Top control panel

1. Remove the two fixation screws that hold the panel.
2. Pull the board backwards (i.e., release it from the front hinge).
3. The board can be lifted out of the bracket after releasing the two fixation clamps at the connector side.

4.4.2 Side I/O Assy and Panel

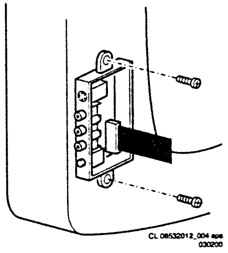


Figure 4-4 Side-I/O panel

1. The complete side I/O-assembly can be removed by unscrewing the two fixation screws.
2. The board can be lifted out of the bracket after releasing the two fixation clamps.

4.4.3 Mains Switch Assy/Panel

4.4.4 Accessing the Mains Switch/LED panel

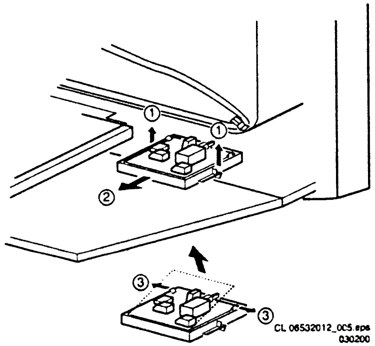


Figure 4-5 Mains Switch/LED panel

1. Release the two fixation clamps (1) by pushing them upward.
2. At the same time, the complete assy must be pulled backward (2).
3. If the board has to be removed, release the two clamps at the sides of the bracket and lift the panel out (3).

4.4.5 Small Signal Board (SSB)

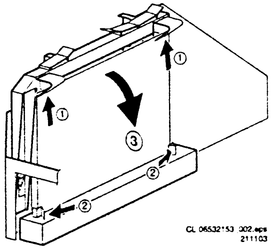


Figure 4-6 SSB removal

1. Push the top of the SSB towards the LOT [1].
2. Due to the pressure, the two metal clamps at both sides of the SIMM-connector will release [2].
3. Take the complete SSB out [3].

4.4.6 Large Signal Panel (LSP)

1. Remove the SSB (see paragraph "Small Signal Board (SSB)" above).
2. Remove the two fixation screws from the large plastic bracket on the right hand side of the LSP (above the EHT shield), and remove the bracket, after releasing the EHT cable and the CRT cables from the fixation clamps on this bracket.
3. Disconnect the other cables (loudspeaker, mains, etc.) from the LSP, and release some cables from their fixation clamps.
4. Press the fixation clamp on the left front side of the LSP-bracket (close to the white arrow/loudspeaker connector) to unlock the LSP, and tilt it upwards (the board hinges at the right side).
5. Remove the board from the bracket by unhooking it from its fixation clamps on the right side.

4.5 Set Re-assembly

To re-assemble the whole set, do all processes in reverse order.

Be sure that, before the rear cover is mounted:

- The mains cord is postioned correctly in its guiding brackets (make sure that the strain relief will function correctly!).
- All wires/cables are returned in their original positions. This is very important, in view of the "hot" and "EHT" areas of the set.

- For sets produced before 1.1.2005, containing leaded soldering tin and components, all needed spare parts will be available till the end of the service period. For the repair of such sets nothing changes.

In case of doubt whether the board is lead-free or not (or with mixed technologies), you can use the following method:
- Always use the highest temperature to solder, when using SAC305 (see also instructions below).
- De-solder thoroughly (clean solder joints to avoid the mixing of two alloys).

Caution: For BGA-ICs, you **must** use the correct temperature-profile, which is coupled to the 12NC. For an overview of these profiles, visit the website *www.atyourservice.ce.philips.com* (needs subscription, but is not available for all regions).
You will find this and more technical information within the "Magazine", chapter "Workshop information".
For additional questions please contact your local repair help desk.

2.4.5 Practical Service Precautions

- **It makes sense to avoid exposure to electrical shock.** While some sources are expected to have a possible dangerous impact, others of quite high potential are of limited current and are sometimes held in less regard.
- **Always respect voltages.** While some may not be dangerous in themselves, they can cause unexpected reactions that are best avoided. Before reaching into a powered TV set, it is best to test the high voltage insulation. It is easy to do, and is a good service precaution.

3. Directions for Use

You can download this information from the following websites:
http://www.philips.com/support
http://www.p4c.philips.com

16. **SOUND.** Selected SOUND mode; "XX"= MONO, NICAM, STEREO, L1 (Language 1), L2 (Language 2), SAP, VIRTUAL, or DIGITAL prior entry to CSM.
17. **VOLUME.** Volume level before entry of CSM (typ. 00..100).
18. **BALANCE.** Balance level before entry of CSM (typ. -50..50).
19. **BRIGHTNESS.** Brightness level before entry of CSM (typ. 00..100).
20. **COLOUR.** Colour level before entry of CSM (typ. 00..100).
21. **CONTRAST.** Contrast level before entry of CSM (typ. 00..100).
22. **HUE** (if present). Hue level before entry of CSM (typ. -50..100).

How to exit CSM

Use one of the following methods:
- After you press a key on the RC-transmitter (with exception of the "CHANNEL", "VOLUME" and digit (0-9) keys), or
- After you switch the TV-set "OFF" with the mains switch.
- After 15 min. no RC or local keyboard actions.

5.3 Problems and Solving Tips (related to CSM)

Note: The problems described below are all related to the TV settings. The procedures to change the value (or status) of the different settings are described above. New value(s) are automatically stored.

5.3.1 Picture Problems

Picture too Dark

1. Press SMART PICTURE on the RC. In case the picture improves, increase the "Brightness" or the "Contrast" value. The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.
2. Check in CSM lines BRIGHTNESS and/or CONTRAST. If the value of line BRIGHTNESS is low (< 10) or the value of line CONTRAST is low (< 10), increase them.

Picture too Bright

1. Press SMART PICTURE on the RC. In case the picture improves, decrease the "Brightness" or the "Contrast" value. The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.
2. Check in CSM lines BRIGHTNESS and/or CONTRAST. If the value of line BRIGHTNESS is high (> 50) or the value of line CONTRAST is high (> 50), decrease the "Brightness" or the "Contrast" value.

White Line Around Picture Elements and Text

1. Press SMART PICTURE on the RC. In case the picture improves, decrease the "Sharpness" value. The new value is automatically stored (in "personal" pre-set) for all TV channels.
2. Check in CSM line SHARPNESS. Decrease the "Sharpness" value. The new value is automatically stored for all TV channels.

No Picture

Check in CSM line 10 (**SIGNAL**). In case this line shows NO SIGNAL, check the aerial cable/aerial system.

Blue Picture

No proper signal is received. Check the aerial cable/aerial system.

Blue Picture and/or Unstable Picture

A scrambled or coded signal is received.

Black and White Picture

Check in CSM line COLOR. In case the value is low (< 10), increase the "Color" value. The new value is automatically stored for all TV channels.

No Colours/colour Lines around Picture Elements or Colours not Correct or Unstable Picture

1. Check in CSM line SYSTEM. If a "strange" system pops up, something has gone wrong during installation. Re-install the channel.
2. In case line SYSTEM is "FRANCE", the installed system for this pre-set is SECAM, while PAL is required. Install the required program again: open the installation menu and perform manual installation. Select system "West Europe".

Menu Text not Sharp Enough

1. Press "SMART PICTURE". In case picture improves, decrease the "Contrast" value. The new value(s) are automatically stored for all TV channels.
2. Check in CSM line CONTRAST. If the value of this line is high (> 50), decrease the "Contrast" value.

5.3.2 Sound Problems

No Sound from Left and Right Speaker

Check in CSM line VOLUME. If the value is high, increase the value of "Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

Sound too Loud for Left and Right Speaker

Check in CSM line VOLUME. If the value is low, decrease the value of "Volume". The new value(s) are automatically stored (in "personal" pre-set) for all TV channels.

5.4 ComPair

5.4.1 Introduction

ComPair (Computer Aided Repair) is a service tool for Philips Consumer Electronics products. ComPair is a further development on the European DST (service remote control), which allows faster and more accurate diagnostics. ComPair has three big advantages:
- ComPair helps you to quickly get an understanding on how to repair the chassis in a short time by guiding you systematically through the repair procedures.
- ComPair allows very detailed diagnostics (on I^{2}C level) and is therefore capable of accurately indicating problem areas. You do not have to know anything about I^{2}C commands yourself because ComPair takes care of this.
- ComPair speeds up the repair time since it can automatically communicate with the chassis (when the microprocessor is working) and all repair information is directly available. When ComPair is installed together with the SearchMan electronic manual of the defective chassis, schematics and PWBs are only a mouse click away.

5.4.2 Specifications

ComPair consists of a Windows based faultfinding program and an interface box between PC and the (defective) product. The ComPair interface box is connected to the PC via a serial or RS232 cable.
For this chassis, the ComPair interface box and the TV communicate via a bi-directional service cable via the service connector.

The ComPair faultfinding program is able to determine the problem of the defective television. ComPair can gather diagnostic information in two ways:
- **Automatically** (by communicating with the television set): ComPair can automatically read out the contents of the entire error buffer. Diagnosis is done on I^{2}C level. ComPair can access the I^{2}C bus of the television. ComPair can send and receive I^{2}C commands to and from the micro controller of the television set. In this way, it is possible for ComPair to communicate (read and write) to devices on the I^{2}C busses of the TV-set.
- **Manually** (by asking questions to you): This option is helpful, because automatic diagnosis is only possible if the micro controller of the television is working correctly (also, the diagnostic possibilities of automatic diagnosis are more limited). When you choose manual diagnosis, ComPair will guide you through the faultfinding tree by asking you questions (e.g. Does the screen give a picture? Click on the correct answer: YES / NO) and by showing you examples (e.g. Measure test-point I7 and click on the correct oscillogram you see on the oscilloscope). You can answer by clicking on a link (e.g. a piece of text or a waveform picture) that will bring you to the next step in the faultfinding process.

By a combination of automatic diagnostics and an interactive question / answer procedure, ComPair will enable you to find most problems in a fast and effective way.

Besides fault finding, ComPair provides some **additional features** like:
- Up- or downloading of pre-sets.
- Managing of pre-set lists.
- Emulation of the Dealer Service Tool (DST).
- If both ComPair and SearchMan (Electronic Service Manual) are installed, all the schematics and the PWBs of the set are available by clicking on the appropriate hyperlink.
  Example: *Measure the DC-voltage on capacitor C2568 (Schematic/Panel) at the Mono-carrier.*
  - Click on the "Panel" hyperlink to automatically show the PWB with a highlighted capacitor C2568.
  - Click on the "Schematic" hyperlink to automatically show the position of the highlighted capacitor.
- SW upgrading

5.4.3 How To Order

ComPair order codes:
- Starter kit ComPair32/SearchMan32 software and ComPair interface (excl. transformer): 3122 785 90450.
- ComPair interface (excluding transformer): 4822 727 21631.
- Starter kit ComPair32 software (registration version): 3122 785 60040.
- Starter kit SearchMan32 software: 3122 785 60050.
- ComPair32 CD (2003 update): 3122 785 60110.
- SearchMan32 CD (2003 update): 3122 785 60120.
- ComPair interface cable: 3122 785 90004.
- ComPair firmware upgrade IC: 3122 785 90510.
- Transformer Europe: 4822 727 21632.
- Transformer UK: 4822 727 21633.

5.5 Error Codes

5.5.1 Introduction

The error code buffer contains all detected errors since the last time the buffer was erased. The buffer is written from left to right, new errors are logged at the left side, and all other errors shift one position to the right.
When an error has occurred, the error is added to the list of errors, provided the list is not full or the error is a protection error.
When an error occurs and the error buffer is full, then the new error is not added, and the error buffer stays intact (history is maintained), except when the error is a protection error.
To prevent that an occasional error stays in the list forever, the error is removed from the list after 50+ operation hours.
When multiple errors occur (errors occurred within a short time span), there is a high probability that there is some relation between them.

5.5.2 How to Read the Error Buffer

Use one of the following methods:
- On screen via the SAM (only if you have a picture). Examples:
  - **0 0 0 0**: No errors detected
  - **6 0 0 0**: Error code 6 is the last and only detected error
  - **9 6 0 0**: Error code 6 was first detected and error code 9 is the last detected error
- Via the blinking LED procedure (when you have no picture). See next paragraph.
- Via ComPair.

5.5.3 How to Clear the Error Buffer

Use **one** of the following methods:
- By activation of the "CLEAR ERRORS" command in the SAM menu.
- With a normal RC, key in sequence "MUTE" followed by "**062599**" and "OK".
- When you transmit the commands "DIAGNOSE" - "99" - "OK" with ComPair (or with a DST).
- If the content of the error buffer has not changed for 50+ hours, it resets automatically.

5.5.4 Error Codes

The function of error codes is to indicate failures in the TV set. In principle a unique error code is available for every:
- I^{2}C device error.
- I^{2}C bus error (for every bus containing two or more I^{2}C devices).
- Protection error (e.g. +8V protection or Horizontal protection).
- Error not related to an I^{2}C device, but of importance (e.g. BC-loop, RAM error).

5. Service Modes, Error Codes, and Fault Finding

Index of this chapter:

5.1 Test Points
5.2 Service Modes
5.3 Problems and Solving Tips (related to CSM)
5.4 ComPair
5.5 Error Codes
5.6 The Blinking LED Procedure
5.7 Software Downloading

5.1 Test Points

See chapter 6 " Block Diagrams, Testpoint Overview, and Waveforms".

Perform measurements under the following conditions:

- Service Default Mode.
- Video: colour bar signal.
- Audio: 3 kHz left, 1 kHz right.

5.2 Service Modes

Service Default Mode (SDM) and Service Alignment Mode (SAM) offer several features for the service technician, while the Customer Service Mode (CSM) is used for communication between a Philips Customer Care Centre (P3C) and a customer.

There is also the option of using ComPair, a hardware interface between a computer (see requirements below) and the TV chassis. It offers the ability of structured troubleshooting, test pattern generation, error code reading, software version readout, and software upgrading.
Minimum requirements: a Pentium processor, Windows 95/98, and a CD-ROM drive (see also paragraph "ComPair").

5.2.1 Service Default Mode (SDM)

Purpose

- To create a pre-defined setting for measurement purposes.
- To override SW protections (only when SDM is activated via shorting the SDM pins on the SSB).
- To start the blinking LED procedure.
- Inspection of error buffer, life timer, and software version.

Specifications

- Tuning frequency: 475.25 MHz for PAL/SECAM.
- Colour system: SECAM L for France or PAL B/G for the rest of Europe.
- All picture settings at 50 % (brightness, colour, contrast).
- All sound settings at 50 %, except volume at 25 %.
- All service-unfriendly modes (if present) are disabled, like:
  - (Sleep) timer.
  - Child/parental lock.
  - Blue mute.
  - Automatic volume limiter (AVL).
  - Auto switch-off (when no video signal was received for 10 minutes).
  - Skip/blank of non-favourite pre-sets.
  - Hotel or hospital mode.
  - Local keyboard block.
  - Smart modes.
  - Auto store of personal presets.
  - Auto user menu time-out.

How to Activate SDM

Use one of the following methods:

- Use the standard RC-transmitter and key in the code "062596", directly followed by the "MENU" button.

  Note: It is possible that, together with the SDM, the main menu will appear. To switch it "off", push the "MENU" button again.
- Short circuit, during switch "on" of the set, the two solder pads on the SSB with the indication "FOR SERVICE". These solder pads are located at the "tuner" side of the SSB (just above the large BGA IC).

  Caution: If the SDM is activated via these pins, all the software-controlled protections are de-activated for 15 s. When these 15 s are expired, the set will shutdown to protection mode.
- Use the DST-emulation feature of ComPair.

After activating this mode:

- "SDM" will appear in the upper right corner of the screen.
- Also, the error buffer, operating hours, and software version are displayed (can be toggled "on/off" with the "STATUS / OSD / [i+]" button).
- Blinking LED procedure will be started.
- All software-controlled protections are overridden for 15 s. When these 15 s are expired, the set will shutdown to protection mode.

Contents of SDM:

- **HRS.** Displays the accumulated total of operation hours (not the standby hours) in hexadecimal value.
- **SW.** Displays the date of the software and the software version of the ROM;

  example: A2EU04-5.10 = AAABBC-X.YY.
  - **AAA**= chassis name.
  - **BB**= region and/or function name: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM, B= Basic, T= Top, P= PAL, N= NTSC, S= Stereo, M= Mono.
  - **C**= the language cluster number.
  - **X.Y**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number).
- **ERR** (followed by maximal 8 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph "Error Codes").

How to Navigate

- When you press the "MENU" button on the RC transmitter, the set will toggle between the SDM and the normal user menu (with the SDM mode still active in the background).
- When you press the "STATUS / OSD / [i+]" button on the RC transmitter, the set will toggle between the full SDM screen or a screen with only the text "SDM" displayed on it. This mode is useful when performing measurements, then the OSD info will not generate interference.

How to Exit SDM

Use one of the following methods:

- Switch the set to STANDBY via a standard customer RC-transmitter (the error buffer is erased).
- Via a standard customer RC-transmitter: key in "00"-sequence (the error buffer is not erased).

5.2.2 Service Alignment Mode (SAM)

Purpose

- To perform alignments.
- To change option settings.
- To easily identify the used software version.
- To view operation hours.
- To display / clear the error code buffer.

Specifications

- Operating hours counter.
- Software version.

- Option settings.
- Error buffer reading and erasing.
- Software alignments.
- Disable service unfriendly modes.

How to Activate SAM

Use one of the following methods:

- Via a standard RC transmitter: key in the code "**062596**" directly followed by the "STATUS / OSD / [i+]" button.
- Use the DST-emulation feature of ComPair.

After activating this mode, "SAM" will appear in the upper right corner of the screen.

Contents of SAM:

- **HRS.** Displays the accumulated total of operation hours (not the standby hours) in hexadecimal value

  Note: every time the set is switched "on" by the mains switch or the RC, the timer is increased by 0.5.
- **SW ID.** Displays the software version of the ROM

  example: A2EU04-5.10 = AAABBC-X.YY.
  - **AAA**= chassis name.
  - **BB**= region and/or function name: E= Europe, A= Asia Pacific, U= NAFTA, L= LATAM, B= Basic, T= Top, P= PAL, N= NTSC, S= Stereo, M= Mono.
  - **C**= the language cluster number.
  - **X.Y**= the software version, where X is the main version number (different numbers are not compatible with one another) and Y is the sub version number (a higher number is always compatible with a lower number).
- **ERR** (followed by maximal 8 errors). The most recent error is displayed at the upper left (for an error explanation see paragraph "Error Codes").
- **OPTIONS.** Extra features for Service.
- **CLEAR ERRORS.** When you press the "OK" button, the error buffer is reset.
- **AKB.** Disable (off) or enable (on) the "black current loop" (AKB= Auto Kine Bias). For Vg2 alignment.
- **TUNER.** This will activate the "TUNER" alignments sub-menu.
- **WHITE TONE.** This will activate the "WHITE TONE" alignments sub-menu.
- **GEOMETRY.** This will activate the "GEOMETRY" alignments sub-menu.
- **SOUND.** This will activate the "SOUND" alignments sub-menu.
- **SMART SETTINGS.** This will activate the "SMART SETTINGS" alignments sub-menu.
- **STORE.** This will save the new settings/alignments.
- **EEPROM TEST.** This will report if the SW checksum is OK. Convenient after SW upgrading.
- **VID RAM TEST.** This will check the continuity of the address bus and data bus of the Video RAM.
- **VG2.** This feature is not implemented yet. **Do not use.**

Note: Alignments are described in chapter 8 "Alignments".

How to Navigate

- In SAM, you can select the menu items with the "CURSOR UP/DOWN" key on the RC-transmitter. The selected item will be highlighted. When not all menu items fit on the screen, move the "CURSOR UP/DOWN" key to display the next/previous menu items.
- With the "CURSOR LEFT/RIGHT" keys, it is possible to:
  - (De) activate the selected menu item.
  - Change the value of the selected menu item.
  - Activate the selected submenu.
- When you press the "MENU" button on the RC transmitter, the set will toggle between the SAM and the normal user menu (with the SAM mode still active in the background).

How to Exit SAM

Use one of the following methods:

- Switch the set to STANDBY via the RC-transmitter (the error buffer is erased).
- Via a standard customer RC-transmitter: key in "00"-sequence (the error buffer is **not** erased).

5.2.3 Customer Service Mode (CSM)

Purpose

When a customer is having problems with his TV-set, he can call his dealer or the Philips helpdesk (P3C). The service technician can than ask the customer to activate the CSM, in order to identify the status of the set. Now, the service technician can judge the severity of the complaint. In many cases, he can advise the customer how to solve the problem, or he can decide if it is necessary to visit the customer.
The CSM is a **read only** mode; therefore, modifications in this mode are not possible.

How to Activate CSM

Use one of the following methods:

- Press the "MUTE" button on the RC-transmitter **simultaneously** with any key on the TV for at least 4 seconds.
- Key in the code "**123654**" via the standard RC transmitter.

Notes:

- Activation of the CSM is only possible if there is no (user) menu on the screen!
- During CSM, sound volume is set to 25% of the scale, "Smart Sound" is set to "Theatre" mode, and "Smart Picture" is set to "Rich/Movies" mode temporarily to ensure a good picture and sound of the working set. After leaving CSM, the original settings are restored.

How to Navigate

By means of the "CURSOR-DOWN/UP" knob on the RC-transmitter, you can navigate through the menus.

Contents of CSM

The following information is displayed on screen:

- Text "CSM" on the first line.
- Line number for every line (to make CSM language independent).
- Option code information.
- Configuration information.
- Service-unfriendly modes.

1. **SET TYPE.** Type/model number (if present) according to the Philips standard (example: 28PW8720/12).
2. **SOFTWARE.** Software version AAABBC-X.YY.
3. **HOURS ON.** Operating hours (in hexadecimal code).
4. **CODE1.** Shows the contents of the error buffer (the word "error" may not be used on this screen, instead "code1" and "code2" is used).
5. **CODE2.** Idem.
6. **OPTION1.** Option code information.
7. **OPTION2.** Idem.
8. **OPTION3.** Idem.
9. **OPTION4.** Idem.
10. **SIGNAL.** "Ident" signal present or not present (VID status bit in MPIF) on selected source.
11. **TIMER.** Timer is activated (in "FEATURE" menu) or deactivated.
12. **CHANNEL.** Child Lock (if present) is activated or deactivated (i.e. when local keyboard is locked).
13. **PRESET.** (If present). Current channel is defined as skipped or non-preferred.
14. **HOTELMODE.** Shows if the HOTEL mode is activated or deactivated (only for Europe and AP).
15. **SOURCE.** Selected source before entry of CSM; XXX (channel no.), external source name (i.e. AV1, CVI, EXT1, etc...).

Table 5-1 Error Table

Error	Description
0	No error
1	Horizontal Protection (via NOHFB bit in ADOC)
3	+8V error (missing/protection active by checking MPIF ASUP bit))
4	X-ray/High beam current protection signal (via XPROT bit in ADOC)
5	Highbeam protection
7	Under-voltage protection
11	MPIF I^2C communication failure / MPIF test failed
12	BC-loop not stabilised within the time limit (i.e. after timer is expired)
13	NVM I^2C communication failure
14	Main tuner 1232 I^2C failure UV13xx
17	3D Y/C 7823 Combfilter I^2C communication failure
18	PIP Tuner I^2C failure
19	2fH component input I^2C failure (PCF8574)
21	PIP IF demodulator IC TDA988x communication failed (only for PIP/DW sets)
22	Flash over protection error (to register CRT flash-overs, via FPR status bit in ADOC)

Service Tips:

- In case of non-intermittent faults, clear the error buffer before you begin the repair. This to ensure that old error codes are no longer present. Before clearing the buffer, write down the content, as this history can give you significant information.
- If possible, check the entire contents of the error buffer. In some situations, an error code is only the result of another error code and not the actual cause (e.g., a fault in the protection detection circuitry can also lead to a protection).

5.6 The Blinking LED Procedure

5.6.1 Introduction

Via this procedure, you can make the contents of the error buffer visible via the front LED. This is especially useful for fault finding, when there is no picture.

When the SDM is activated, the front LED will show (by blinking) the contents of the error-buffer. Error-codes > 10 are shown as follows:

1. A long blink of 750 ms (which is an indication of the decimal digit),
2. A pause of 1500 ms,
3. "n" short blinks (where "n" = 1 - 9),
4. When all the error-codes are displayed, the sequence finishes with a LED blink of 3000 ms,
5. The sequence starts again.

Example: Error 12 9 6 0 0.
After activation of the SDM, the front LED will show:

1. 1 long blink of 750 ms (which is an indication of the decimal digit) followed by a pause of 1500 ms,
2. 2 short blinks of 250 ms, followed by a pause of 3000 ms,
3. 9 short blinks of 250 ms, followed by a pause of 3000 ms,
4. 6 short blinks of 250 ms, followed by a pause of 3000 ms,
5. 1 long blink of 3000 ms to finish the sequence,
6. The sequence starts again.

5.6.2 How to Activate

Use one of the following methods:

- Activate the SDM (only via soldering pads marked "FOR SERVICE" on the SSB). The blinking front LED will show the entire contents of the error buffer (this works in "normal operation" mode and in "protection" mode). In order to avoid confusion with RC5 signal reception blinking, this LED blinking procedure is terminated when an RC5 command is received.
- Transmit the commands "MUTE", "**06250x**", and "OK" with a normal RC (where "x" is the position in the error buffer that has to be displayed). With x= 1, the last detected error is shown, x= 2 the second last error, etc.... When x= 0, all errors are shown.
- "DIAGNOSE X" with the DST (where "x" is the position in the error buffer that has to be displayed). With x= 1, the last detected error is shown, x= 2 the second last error, etc.... When x= 0, all errors are shown.

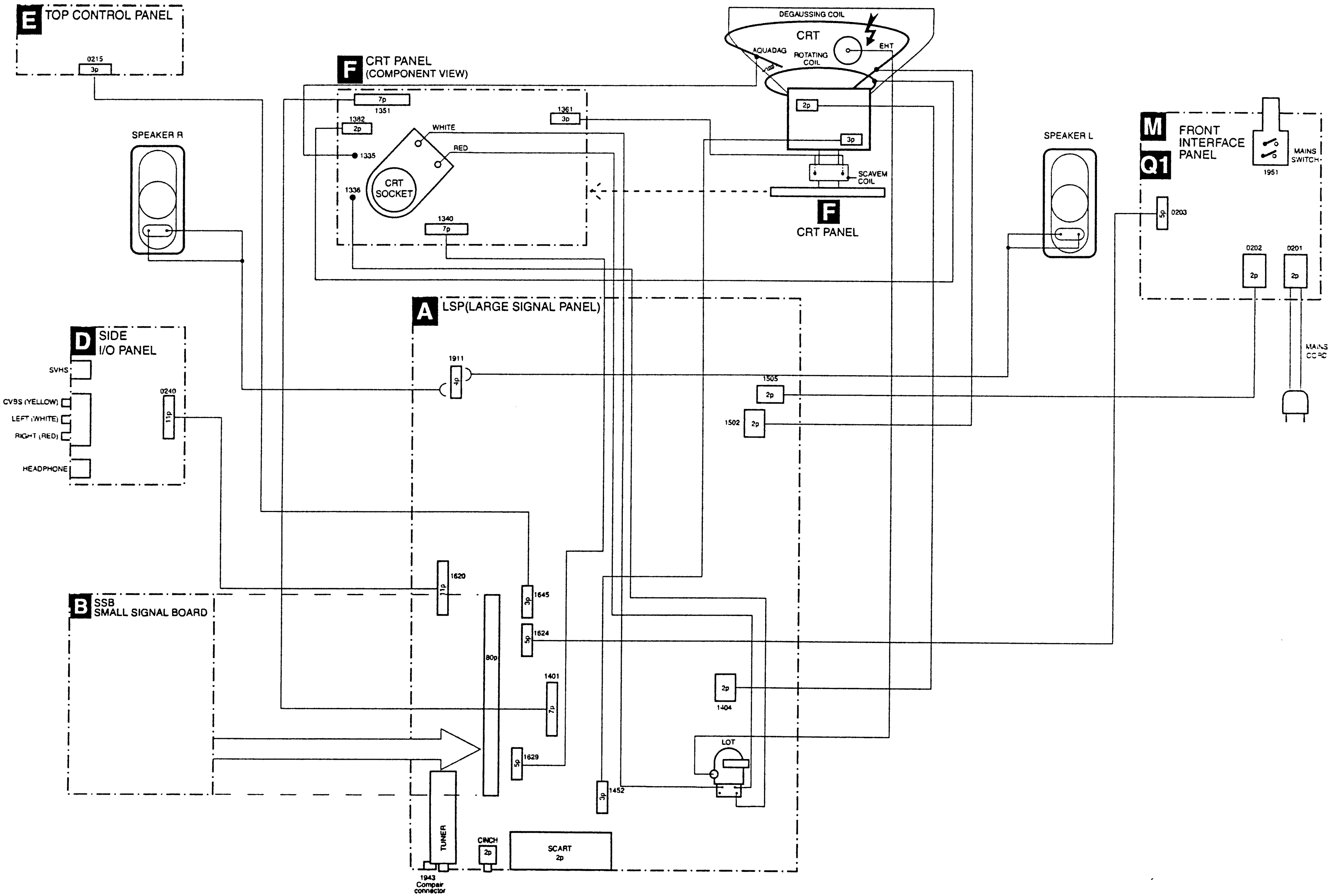
Note: It can take some seconds before the blinking LED starts.

5.7 Software Downloading

In this chassis, you can **upgrade** the software via ComPair. You can find more information on how this procedure works in the ComPair file. It is possible that not all sets are equipped with the hardware, needed to make software upgrading possible. To speed up the programming process the firmware of the ComPair interface can be upgraded. See paragraph "How To Order" for the order numbers.

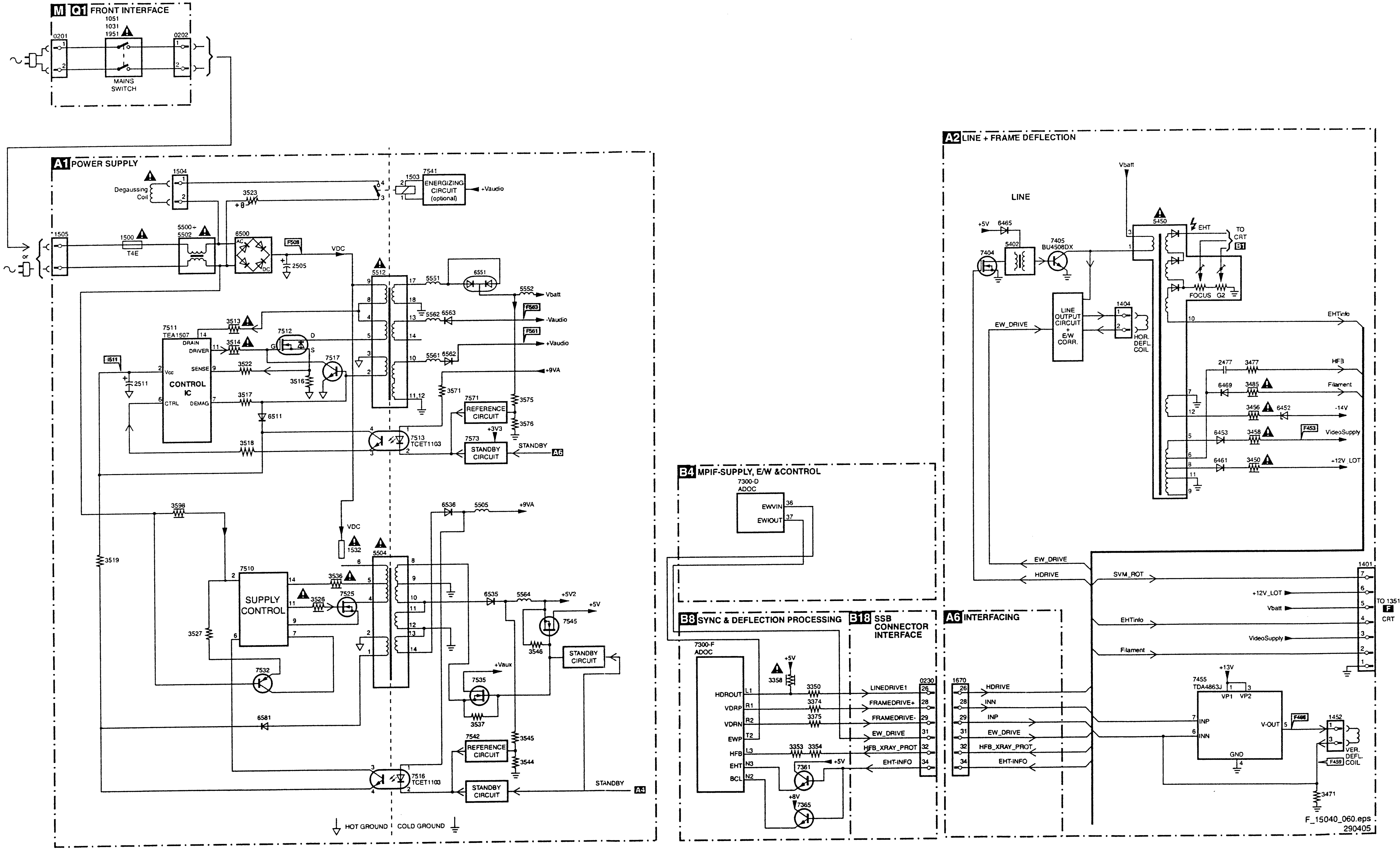
6. Block Diagrams, Testpoint Overviews, and Waveforms

Wiring Diagram


E
TOP CONTROL PANEL
0215
3p
F
CRT PANEL
(COMPONENT VIEW)
7p
1351
1382
2p
1335
1336
WHITE
RED
CRT
SOCKET
1361
3p
1340
7p
DEGAUSSING COIL
CRT
AQUADAG
ROTATING
COIL
EHT
2p
3p
SCAVEM
COIL
F
CRT PANEL
SPEAKER R
SPEAKER L
M
Q1
FRONT
INTERFACE
PANEL
MAINS
SWITCH
1951
5p
0203
0202
2p
0201
2p
MAINS
CORD
A
LSP(LARGE SIGNAL PANEL)
1911
4p
1505
2p
1502
2p
D
SIDE
I/O PANEL
SVHS
CVBS (YELLOW)
LEFT (WHITE)
RIGHT (RED)
HEADPHONE
0240
11p
1620
11p
B
SSB
SMALL SIGNAL BOARD
80p
1645
3p
1624
5p
1401
7p
1629
5p
1452
3p
2p
1404
LOT
TUNER
CINCH
2p
SCART
2p
1943
Compair
connector

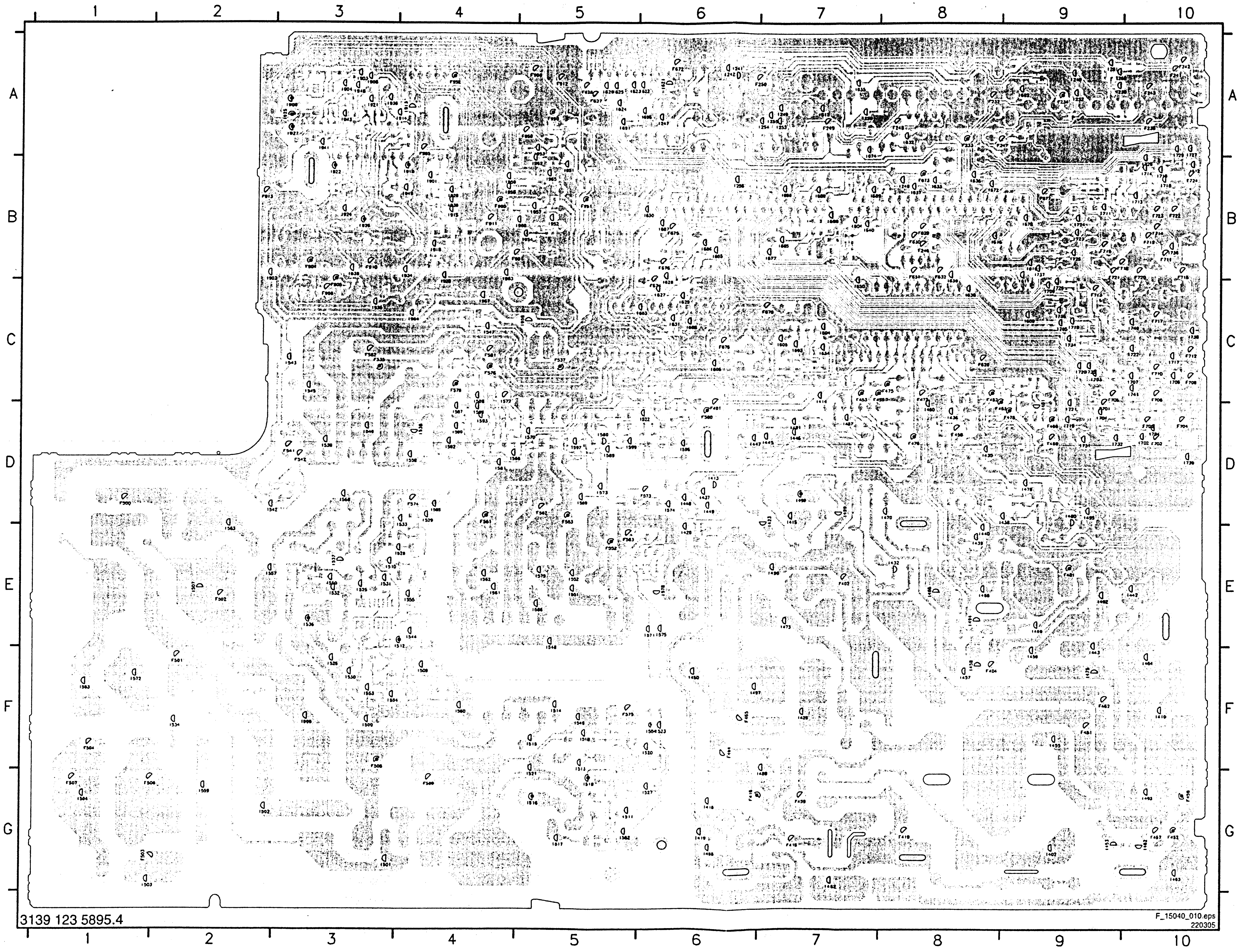
F_15040_054.eps
250405

Block Diagram LSP Supply and Deflection

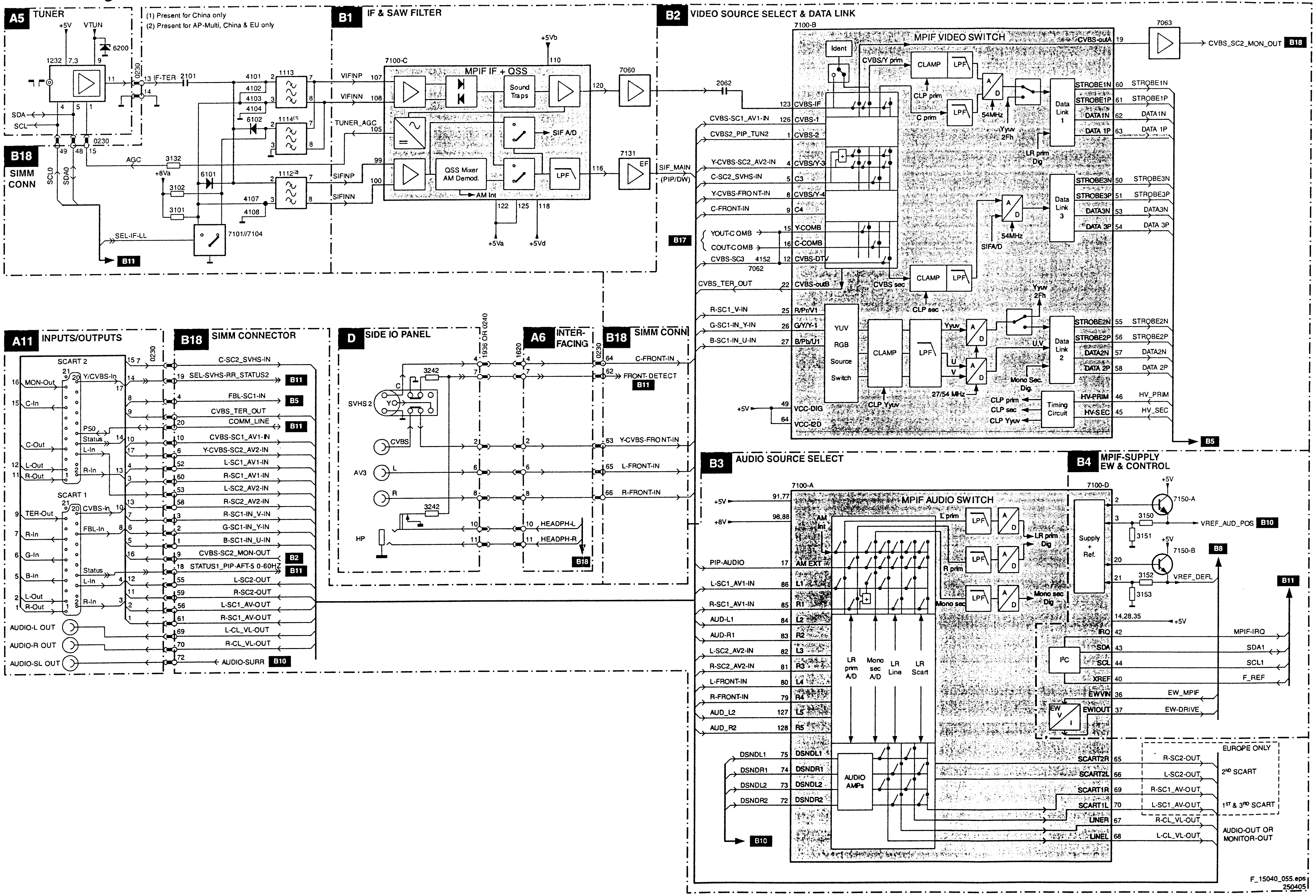

M Q1 FRONT INTERFACE
1051
1031
1951
0201
0202
MAINS SWITCH
A1 POWER SUPPLY
Degaussing Coil
1504
3523
+B
7541
1503
ENERGIZING CIRCUIT (optional)
+Vaudio
1505
or
1500
T4E
5500÷5502
6500
F508
VDC
2505
5512
5551
6551
5552
Vbatt
5562
6563
F563
-Vaudio
F561
+Vaudio
5561
6562
+9VA
3571
7571
REFERENCE CIRCUIT
3575
3576
+3V3
7573
STANDBY CIRCUIT
STANDBY
A6
7511
TEA1507
DRAIN
DRIVER
3513
3514
7512
7517
3522
3516
SENSE
CONTROL IC
Vcc
CTRL
DEMAG
3517
6511
I511
2511
3518
7513
TCET1103
3598
3519
VDC
1532
5504
7510
SUPPLY CONTROL
3536
3526
7525
3527
7532
6581
6536
5505
+9VA
6535
5564
+5V2
+5V
7545
3546
STANDBY CIRCUIT
+Vaux
7535
3537
7542
REFERENCE CIRCUIT
3545
3544
7516
TCET1103
STANDBY CIRCUIT
STANDBY
A4
HOT GROUND
COLD GROUND
A2 LINE + FRAME DEFLECTION
Vbatt
LINE
+5V
6465
5402
7405
BU4508DX
7404
5450
EHT
TO CRT
B1
FOCUS
G2
LINE OUTPUT CIRCUIT + E/W CORR.
1404
HOR. DEFL. COIL
EW_DRIVE
EHTinfo
2477
3477
HF3
6469
3485
Filament
3456
6452
-14V
6453
3458
F453
VideoSupply
6461
3450
+12V LOT
B4 MPIF-SUPPLY, E/W &CONTROL
7300-D
ADOC
EWVIN
EWIOUT
EW_DRIVE
HDRIVE
SVM_ROT
1401
TO 1351
F
CRT
+12V_LOT
Vbatt
EHTinfo
VideoSupply
Filament
B8 SYNC & DEFLECTION PROCESSING
B18 SSB CONNECTOR INTERFACE
7300-F
ADOC
HDROUT
VDRP
VDRN
EWP
HFB
EHT
BCL
+5V
3358
3350
3374
3375
3353
3354
7361
+8V
7365
0230
LINEDRIVE1
FRAMEDRIVE+
FRAMEDRIVE-
EW_DRIVE
HFB_XRAY_PROT
EHT-INFO
A6 INTERFACING
1670
HDRIVE
INN
INP
EW_DRIVE
HFB_XRAY_PROT
EHT-INFO
+13V
7455
TDA4863J
VP1
VP2
INP
INN
V-OUT
GND
F466
1452
VER. DEFL. COIL
F459
3471
F_15040_060.eps
290405

Testpoint Overview LSP

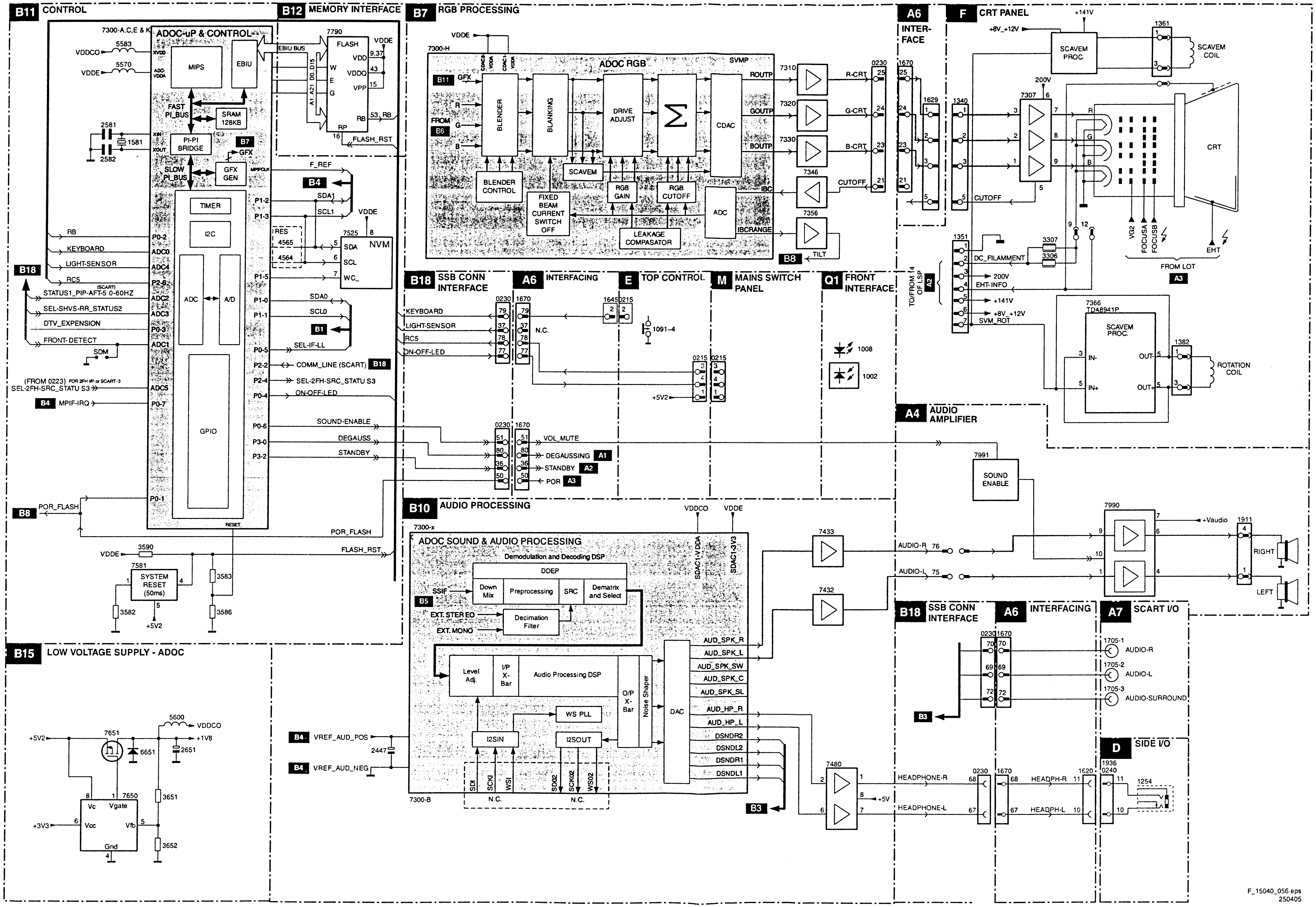
F232	A8
F233	A8
F234	A9
F235	A10
F241	A10
F242	A10
F243	A10
F246	B8
F247	A8
F248	A8
F249	A7
F250	A6
F401	D6
F402	E7
F404	F8
F416	G6
F418	G7
F419	G8
F451	F9
F452	G10
F453	C7
F455	C7
F456	G10
F457	G10
F458	D8
F459	G7
F462	F9
F464	F6
F465	F6
F466	D9
F469	D9
F472	C8
F475	C8
F476	D8
F478	D9
F481	E9
F482	C8
F483	D8
F500	D1
F501	F2
F502	E2
F503	G1
F504	F1
F506	G1
F507	G1
F508	F3
F509	G4
F535	C3
F537	C5
F541	D3
F542	D3
F552	E5
F561	D4
F562	D5
F563	D5
F573	D6
F574	D4
F575	F5
F576	C4
F578	C4
F580	D6
F581	C4
F582	C3
F583	E5
F620	C8
F627	A5
F628	A5
F629	B8
F630	B8
F631	B8
F632	B8
F672	A6
F673	B8
F674	C6
F675	B6
F676	B6
F677	B9
F678	C6
F679	C7
F701	D9
F702	D10
F703	D10
F704	D10
F705	C9
F706	C10
F708	C10
F710	C10
F711	B10
F712	C10
F713	C9
F714	B10
F715	B9
F716	B10
F717	C10
F718	B9
F719	B10
F720	B10
F721	B9
F722	B10
F723	B10
F724	B10
F901	B4
F903	A4
F904	B3
F905	C3
F910	B3
F911	B4
F912	A5
F913	B2
F950	A5
F951	B5
F952	A4
F955	B4
F956	C3
F958	A5
F959	A5
I232	A9
I239	A9
I240	A9
I241	A6
I242	A6
I247	A6
I248	B8
I249	A7
I253	A7
I254	A7
I255	A7
I256	B6
I259	A7
I260	A9
I261	A9
I402	G9
I410	F10
I413	D6
I414	C7
I415	D7
I418	G6
I419	G6
I420	E6
I423	D7
I428	F7
I432	E8
I435	D8
I436	D8
I437	D6
I438	D9
I439	E8
I440	E8
I442	E10
I443	F9
I445	D7
I446	D7
I447	D6
I448	D6
I449	D6
I450	F6
I453	G9
I455	F9
I457	F8
I458	F8
I459	F9
I460	D8
I462	G7
I463	G10
I464	F10
I466	E8
I468	E8
I469	E9
I470	D8
I473	E7
I475	F9
I476	D9
I480	D9
I481	D9
I482	G10
I487	D7
I488	G6
I489	G7
I490	D7
I491	D7
I492	E9
I493	G10
I494	E8
I495	D9
I496	E7
I497	F6
I499	D7
I500	F3
I501	G3
I502	G2
I503	G1
I504	G1
I506	F3
I507	E2
I509	F4
I510	E3
I511	G5
I512	E4
I513	F5
I514	F5
I515	F5
I516	G5
I517	G5
I518	F5
I519	G5
I520	F6
I521	G5
I522	D6
I523	F6
I525	E3
I526	F3
I527	G6
I528	E4
I529	D4
I530	F3
I531	E3
I532	E3
I533	E4
I534	F2
I536	E3
I537	E3
I538	D4
I539	D3
I540	D3
I542	D2
I543	C3
I544	E4
I545	C3
I546	F5
I547	C4
I548	F5
I550	E3
I551	E5
I552	E5
I553	F3
I554	F3
I555	E4
I557	E2
I558	D4
I559	G2
I560	F4
I561	E4
I562	E4
I563	E2
I564	F6
I565	D4
I566	D4
I568	D3
I569	D5
I570	D5
I571	E6
I572	F1
I573	D5
I574	D6
I575	E6
I577	C4
I578	E6
I579	E5
I580	D5
I581	D4
I582	G5
I583	F1
I586	E5
I587	D4
I588	C4
I589	D5
I590	D4
I591	D4
I592	D4
I593	D4
I596	D6
I597	D5
I599	D5
I602	A9
I603	C6
I604	B7
I605	C7
I606	C6
I608	C6
I609	C9
I610	B9
I611	C9
I612	A7
I616	B8
I621	A6
I622	A6
I623	A5
I624	A5
I625	A5
I626	A5
I627	C6
I628	C6
I629	C6
I630	B6
I631	C6
I632	A8
I633	B8
I634	C7
I635	A7
I636	B8
I637	B8
I638	C8
I639	C8
I640	B7
I650	C7
I672	B8
I674	A7
I677	B7
I678	B9
I680	B7
I685	B6
I686	B6
I687	B6
I688	B7
I689	B7
I690	B7
I691	A5
I693	C7
I694	C7
I695	B7
I696	A6
I701	D9
I702	D10
I703	C9
I704	D10
I705	C9
I707	C10
I708	C10
I709	C9
I710	C9
I711	B9
I712	B10
I713	B10
I714	B10
I715	B10
I716	B10
I717	C10
I719	D9
I720	C9
I721	D9
I722	C10
I723	B9
I724	B9
I725	B9
I726	C9
I727	A10
I728	B10
I729	A10
I731	D9
I732	D9
I733	C9
I734	C9
I735	C9
I736	B10
I737	B9
I738	C10
I739	D10
I740	C10
I741	C10
I901	B4
I902	C2
I903	A3
I904	A3
I908	A3
I909	A3
I913	A4
I914	A4
I915	B4
I916	B4
I918	B4
I920	C4
I921	A3
I922	B3
I924	B3
I925	A3
I926	B3
I927	A3
I928	B4
I930	B4
I934	B4
I935	C3
I936	A3
I938	B3
I941	A3
I943	A3
I945	B4
I948	A3
I951	B5
I952	B5
I953	A5
I954	B5
I956	B4
I957	B5
I958	C5
I959	B4
I960	B5
I962	B5
I963	B4
I964	C4
I965	B5
I967	C4



Block Diagram 1 Audio & Video


A5 TUNER
(1) Present for China only
(2) Present for AP-Multi, China & EU only
+5V
VTUN
6200
1232
7.3
9
11
0230
13
IF-TER
2101
14
SDA
SCL
4
5
1
0230
B18
SIMM CONN
49
48
15
SCL0
SDA0
AGC
3132
+8Va
3102
3101
6101
SEL-IF-LL
B11
7101//7104
B1 IF & SAW FILTER
4101
4102
4103
4104
6102
1113
1114(1)
1112(2)
4107
4108
VIFINP
VIFINN
TUNER_AGC
SIFINP
SIFINN
7100-C
+5Vb
110
MPIF IF + QSS
Sound Traps
SIF A/D
QSS Mixer AM Demod.
AM Int
LPF
122
125
118
+5Va
+5Vd
107
108
105
99
100
120
116
7060
7131
EF
SIF_MAIN (PIP/DW)
2062
B17
B2 VIDEO SOURCE SELECT & DATA LINK
7100-B
MPIF VIDEO SWITCH
Ident
CVBS/Y prim
CLAMP
LPF
CLP prim
C prim
A/D
54MHz
Yyuv 2Fh
LR prim Dig
Data Link 1
Data Link 3
Data Link 2
CVBS-outA
19
7063
CVBS_SC2_MON_OUT
B18
STROBE1N 60 STROBE1N
STROBE1P 61 STROBE1P
DATA1N 62 DATA1N
DATA 1P 63 DATA 1P
STROBE3N 50 STROBE3N
STROBE3P 51 STROBE3P
DATA3N 53 DATA3N
DATA 3P 54 DATA 3P
STROBE2N 55 STROBE2N
STROBE2P 56 STROBE2P
DATA2N 57 DATA2N
DATA 2P 58 DATA 2P
HV-PRIM 46 HV_PRIM
HV-SEC 45 HV_SEC
B5
123 CVBS-IF
CVBS-SC1_AV1-IN 126 CVBS-1
CVBS2_PIP_TUN2 1 CVBS-2
Y-CVBS-SC2_AV2-IN 4 CVBS/Y-3
C-SC2_SVHS-IN 5 C3
Y-CVBS-FRONT-IN 8 CVBS/Y-4
C-FRONT-IN 9 C4
YOUT-COMB 15 Y-COMB
COUT-COMB 16 C-COMB
CVBS-SC3 4152 12 CVBS-DTV
7062
CVBS_TER_OUT 22 CVBS-outB
CVBS sec
CLP sec
SIFA/D
R-SC1_V-IN 25 R/Pr/V1
G-SC1-IN_Y-IN 26 G/Y/Y-1
B-SC1-IN_U-IN 27 B/Pb/U1
YUV RGB Source Switch
CLAMP
LPF
U
V
U,V
27/54 MHz
Mono Sec. Dig.
CLP Yyuv
CLP prim
CLP sec
CLP Yyuv
Timing Circuit
+5V
49 VCC-DIG
64 VCC-I2D
A11 INPUTS/OUTPUTS
SCART 2
MON-Out
C-In
C-Out
L-Out
R-Out
Y/CVBS-In
P50
Status
L-In
R-In
SCART 1
TER-Out
R-In
G-In
B-In
L-Out
R-Out
CVBS-In
FBL-In
Status
L-In
R-In
AUDIO-L OUT
AUDIO-R OUT
AUDIO-SL OUT
B18 SIMM CONNECTOR
C-SC2_SVHS-IN
SEL-SVHS-RR_STATUS2 B11
FBL-SC1-IN B5
CVBS_TER_OUT
COMM_LINE B11
CVBS-SC1_AV1-IN
Y-CVBS-SC2_AV2-IN
L-SC1_AV1-IN
R-SC1_AV1-IN
L-SC2_AV2-IN
R-SC2_AV2-IN
R-SC1-IN_V-IN
G-SC1-IN_Y-IN
B-SC1-IN_U-IN
CVBS-SC2_MON-OUT B2
STATUS1_PIP-AFT-5 0-60HZ B11
L-SC2-OUT
R-SC2-OUT
L-SC1_AV-OUT
R-SC1_AV-OUT
L-CL_VL-OUT
R-CL_VL-OUT
AUDIO-SURR B10
D SIDE IO PANEL
1936 OR 0240
1620
SVHS 2
3242
CVBS
AV3
L
R
HP
3242
A6 INTER-FACING
B18 SIMM CONN
0230
C-FRONT-IN
FRONT-DETECT B11
Y-CVBS-FRONT-IN
L-FRONT-IN
R-FRONT-IN
HEADPH-L
HEADPH-R
B18
B3 AUDIO SOURCE SELECT
7100-A
MPIF AUDIO SWITCH
+5V 91,77
+8V 98,88
AM Int
PIP-AUDIO 17 AM EXT
L-SC1_AV1-IN 86 L1
R-SC1_AV1-IN 85 R1
AUD-L1 84 L2
AUD-R1 83 R2
L-SC2_AV2-IN 82 L3
R-SC2_AV2-IN 81 R3
L-FRONT-IN 80 L4
R-FRONT-IN 79 R4
AUD_L2 127 L5
AUD_R2 128 R5
L prim
LR prim Dig
R prim
Mono sec
Mono sec Dig
LR prim A/D
Mono sec A/D
LR Line
LR Scart
DSNDL1 75 DSNDL1
DSNDR1 74 DSNDR1
DSNDL2 73 DSNDL2
DSNDR2 72 DSNDR2
AUDIO AMPs
B10
SCART2R 65 R-SC2-OUT
SCART2L 66 L-SC2-OUT
SCART1R 69 R-SC1_AV-OUT
SCART1L 70 L-SC1_AV-OUT
LINER 67 R-CL_VL-OUT
LINEL 68 L-CL_VL-OUT
EUROPE ONLY
2ND SCART
1ST & 3RD SCART
AUDIO-OUT OR MONITOR-OUT
B4 MPIF-SUPPLY EW & CONTROL
7100-D
+5V
Supply + Ref.
7150-A
3150
3151
VREF_AUD_POS B10
7150-B
B8
3152
3153
VREF_DEFL
B11
14,28,35 +5V
IRQ 42 MPIF-IRQ
I2C
SDA 43 SDA1
SCL 44 SCL1
XREF 40 F_REF
EWVIN 36 EW_MPIF
EWIOUT 37 EW-DRIVE
F_15040_055.eps 250405

Block Diagram 2 Audio & Video


B11 CONTROL
7300-A,C,E & K
ADOC-uP & CONTROL
VDDCO 5583
VDDE 5570
XVDD
ADC-VDDA
MIPS
EBIU
FAST PI_BUS
SRAM 128KB
PI-PI BRIDGE
B7 GFX
SLOW PI_BUS
GFX GEN
2581
1581
2582
XIN
XOUT
TIMER
I2C
ADC
A/D
GPIO
RB
KEYBOARD
LIGHT-SENSOR
RC5
STATUS1_PIP-AFT-5 0-60HZ
SEL-SHVS-RR_STATUS2
DTV_EXPENSION
FRONT-DETECT
SDM
(FROM 0223) FOR 2FH IP or SCART-3
SEL-2FH-SRC_STATU S3
B4 MPIF-IRQ
B18
P0-2
ADC0
ADC4
P2-6
ADC2
ADC3
P0-3
ADC1
ADC5
P0-7
P0-1
P1-2
P1-3
P1-5
P1-0
P1-1
P0-5
P2-2
P2-4
P0-4
P0-6
P3-0
P3-2
MPIFCLK
F_REF
B4
SDA1
SCL1
VDDE
RES
4565
4564
7525 8
NVM
SDA
SCL
WC_
SDA0
SCL0
B1
SEL-IF-LL
COMM_LINE (SCART) B18
SEL-2FH-SRC_STATU S3
ON-OFF-LED
SOUND-ENABLE
DEGAUSS
STANDBY
B8 POR_FLASH
POR_FLASH
FLASH_RST
RESET
VDDE 3590
7581
SYSTEM RESET (50ms)
3582
+5V2
3583
3586
B12 MEMORY INTERFACE
7790
FLASH
EBIU BUS
VDDE
VDD 9,37
VDDQ 43
VPP 15
A1..A21 D0..D15
W
E
G
RB 53 RB
RP 16
FLASH_RST
B7 RGB PROCESSING
VDDE
7300-H
ADOC RGB
SVMP
B11 GFX
FROM B6
R
G
B
BLENDER
BLANKING
DRIVE ADJUST
Σ
CDAC
ROUTP
GOUTP
BOUTP
IBC
IBCRANGE
BLENDER CONTROL
FIXED BEAM CURRENT SWITCH OFF
SCAVEM
RGB GAIN
RGB CUTOFF
ADC
LEAKAGE COMPASATOR
7310
7320
7330
7346
7356
R-CRT
G-CRT
B-CRT
CUTOFF
TILT
B8
0230
25
24
23
21
A6 INTER-FACE
1670
1629
1340
F CRT PANEL
+141V
+8V_+12V
SCAVEM PROC.
1361
SCAVEM COIL
200V
7307
CRT
CUTOFF
VG2
FOCUSA
FOCUSB
EHT
FROM LOT A3
1351
3307
3306
DC_FILAMENT
200V
EHT-INFO
+141V
+8V_+12V
SVM_ROT
TO/FROM 14 OF LSP A2
7366 TDA8941P
SCAVEM PROC.
IN-
IN+
OUT-
OUT+
1382
ROTATION COIL
B18 SSB CONN INTERFACE
A6 INTERFACING
E TOP CONTROL
M MAINS SWITCH PANEL
Q1 FRONT INTERFACE
KEYBOARD
LIGHT-SENSOR
RC5
ON-OFF-LED
79
37
78
77
N.C.
1645 0215
1091-4
0215 0215
+5V2
1008
1002
51
80
36
50
VOL_MUTE
DEGAUSSING A1
STANDBY A2
POR A3
A4 AUDIO AMPLIFIER
7991
SOUND ENABLE
7990
+Vaudio
1911
RIGHT
LEFT
AUDIO-R 76
AUDIO-L 75
7433
7432
B10 AUDIO PROCESSING
VDDCO
VDDE
7300-x
ADOC SOUND & AUDIO PROCESSING
SDAC1-VDDA
SDAC1-3V3
Demodulation and Decoding DSP
DDEP
SSIF
Down Mix
Preprocessing
SRC
Dematrix and Select
B5
EXT. STEREO
EXT. MONO
Decimation Filter
Level Adj.
I/P X-Bar
Audio Processing DSP
O/P X-Bar
Noise Shaper
DAC
WS PLL
I2SIN
I2SOUT
SDI
SCKI
WSI
SDO2
SCKO2
WSO2
N.C.
7300-B
AUD_SPK_R
AUD_SPK_L
AUD_SPK_SW
AUD_SPK_C
AUD_SPK_SL
AUD_HP_R
AUD_HP_L
DSNDR2
DSNDL2
DSNDR1
DSNDL1
B3
B4 VREF_AUD_POS
2447
B4 VREF_AUD_NEG
7480
+5V
HEADPHONE-R
HEADPHONE-L
B18 SSB CONN INTERFACE
A6 INTERFACING
A7 SCART I/O
0230 1670
70
69
72
B3
1705-1 AUDIO-R
1705-2 AUDIO-L
1705-3 AUDIO-SURROUND
D SIDE I/O
1936 0240
1620
HEADPH-R
HEADPH-L
1254
B15 LOW VOLTAGE SUPPLY - ADOC
+5V2
7651
6651
5600
VDDCO
+1V8
2651
7650
Vc
Vgate
Vcc
Vfb
Gnd
+3V3
3651
3652

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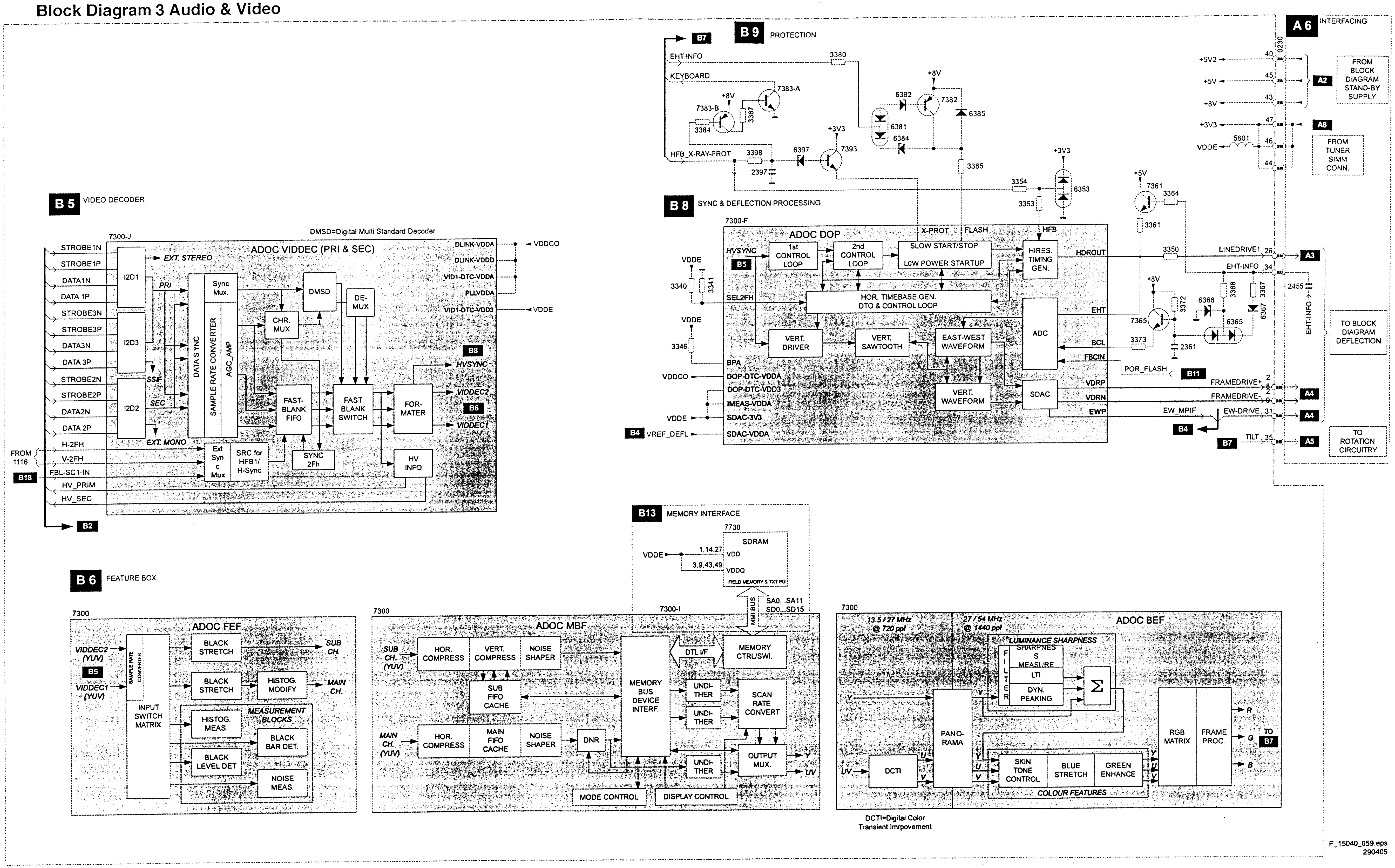
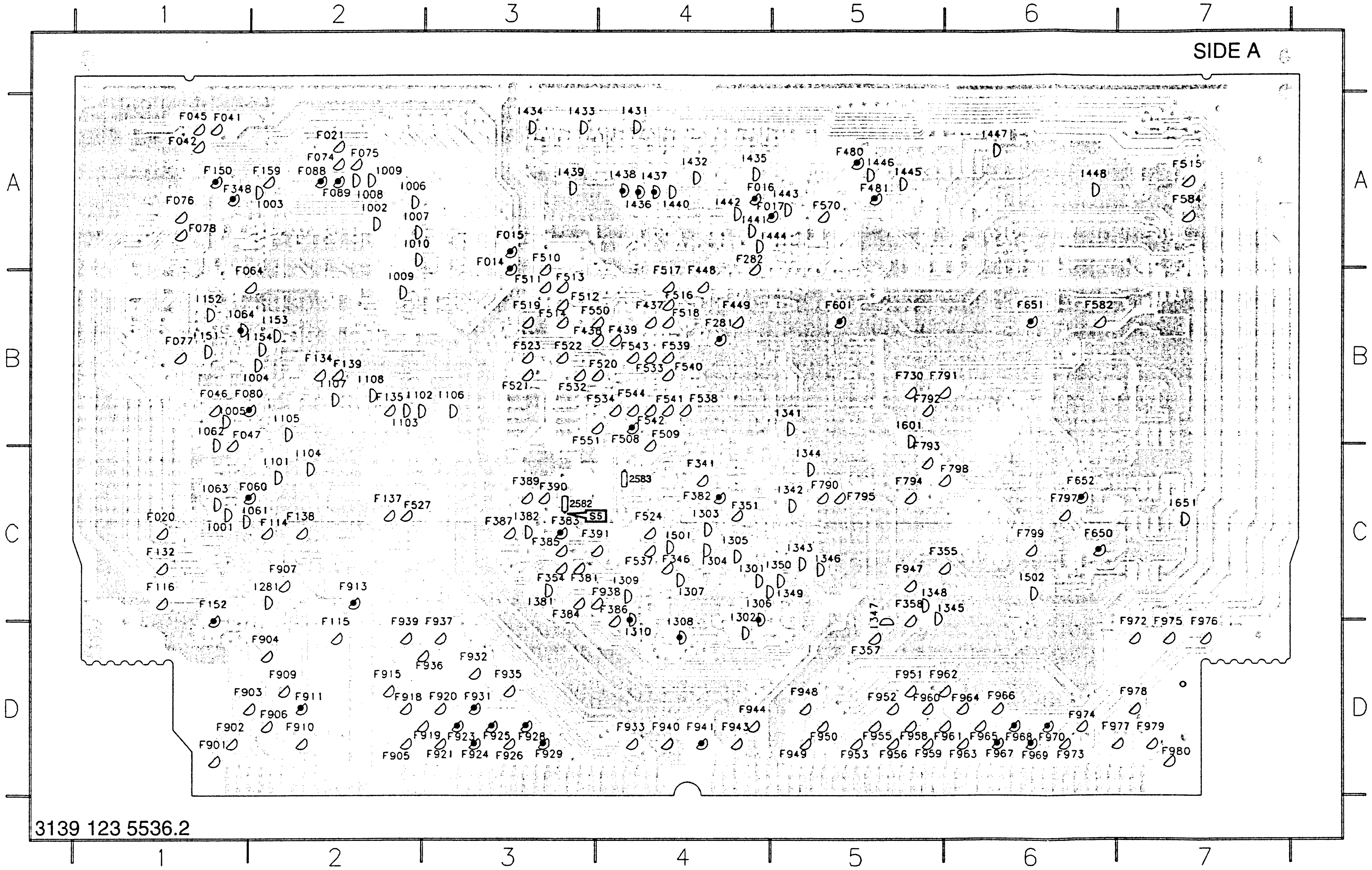
250405

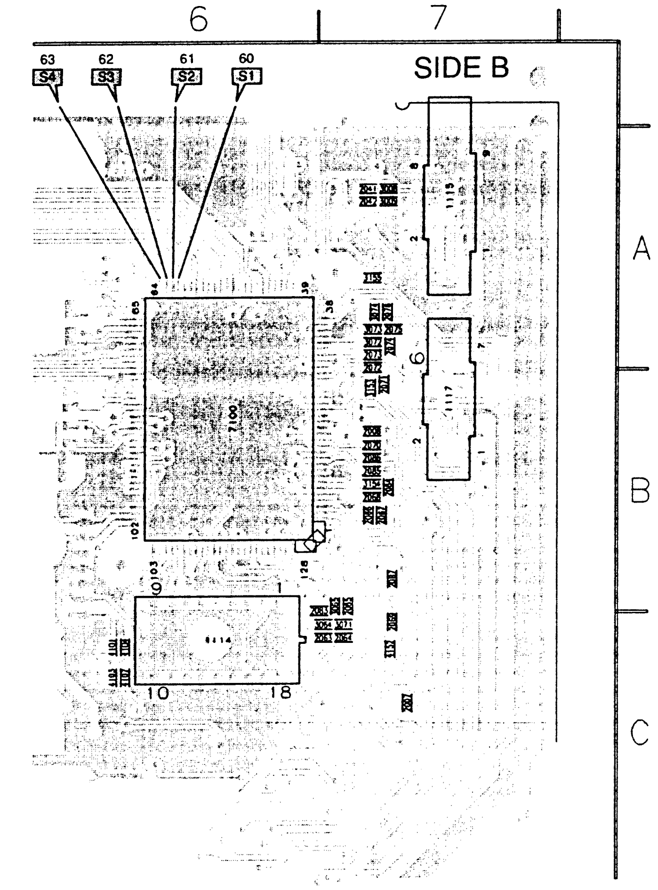
Block Diagram 3 Audio & Video

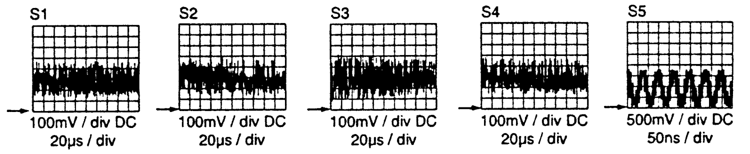

B5 VIDEO DECODER
7300-J
DMSD=Digital Multi Standard Decoder
ADOC VIDDEC (PRI & SEC)
STROBE1N
STROBE1P
DATA1N
DATA 1P
STROBE3N
STROBE3P
DATA3N
DATA 3P
STROBE2N
STROBE2P
DATA2N
DATA 2P
H-2FH
V-2FH
FBL-SC1-IN
HV_PRIM
HV_SEC
FROM 1116
B18
B2
I2D1
I2D3
I2D2
EXT. STEREO
PRI
SSIF
SEC
EXT. MONO
DATA S SYNC
SAMPLE RATE CONVERTER
AGC_AMP
Sync Mux.
DMSD
DE-MUX
CHR. MUX
FAST-BLANK FIFO
FAST BLANK SWITCH
FOR-MATER
Ext Sync Mux
SRC for HFB1/ H-Sync
SYNC 2Fh
HV INFO
DLINK-VDDA
DLINK-VDDD
VID1-DTC-VDDA
PLLVDDA
VID1-DTC-VDD3
VDDCO
VDDE
B8
HVSYNC
VIDDEC2
B6
VIDDEC1
B9 PROTECTION
B7
EHT-INFO
KEYBOARD
HFB_X-RAY-PROT
3380
+8V
7383-A
7383-B
3387
3384
6382
7382
6381
6384
6385
+3V3
6397
7393
3398
2397
3385
3354
3353
6353
B8 SYNC & DEFLECTION PROCESSING
7300-F
ADOC DOP
X-PROT
FLASH
HFB
HVSYNC
B5
1st CONTROL LOOP
2nd CONTROL LOOP
SLOW START/STOP
LOW POWER STARTUP
HIRES. TIMING GEN.
HDROUT
SEL2FH
HOR. TIMEBASE GEN. DTO & CONTROL LOOP
VERT. DRIVER
VERT. SAWTOOTH
EAST-WEST WAVEFORM
VERT. WAVEFORM
ADC
SDAC
EHT
BCL
FBCIN
VDRP
VDRN
EWP
BPA
DOP-DTC-VDDA
DOP-DTC-VDD3
IMEAS-VDDA
SDAC-3V3
SDAC-VDDA
VDDE
3340
3341
3346
VDDCO
B4
VREF_DEFL
+5V
7361
3364
3361
3350
LINEDRIVE1 26
EHT-INFO 34
+8V
7365
3372
6368
3368
3367
6367
6365
3373
2361
POR_FLASH
B11
FRAMEDRIVE+ 2
FRAMEDRIVE- 9
EW_MPIF
EW-DRIVE 31
TILT 35
2455
EHT-INFO
A6 INTERFACING
0230
+5V2 40
+5V 45
+8V 43
+3V3 47
VDDE 5601 46
44
A2
FROM BLOCK DIAGRAM STAND-BY SUPPLY
A8
FROM TUNER SIMM CONN.
A3
A4
A5
TO BLOCK DIAGRAM DEFLECTION
TO ROTATION CIRCUITRY
B13 MEMORY INTERFACE
7730
SDRAM
VDDE
1,14,27
3,9,43,49
VDD
VDDQ
FIELD MEMORY & TXT PG
MMI BUS
SA0...SA11
SD0...SD15
7300-I
B6 FEATURE BOX
7300
ADOC FEF
VIDDEC2 (YUV)
B5
VIDDEC1 (YUV)
SAMPLE RATE CONVERTER
INPUT SWITCH MATRIX
BLACK STRETCH
SUB CH.
BLACK STRETCH
HISTOG. MODIFY
MAIN CH.
MEASUREMENT BLOCKS
HISTOG. MEAS.
BLACK BAR DET.
BLACK LEVEL DET
NOISE MEAS.
7300
ADOC MBF
SUB CH. (YUV)
HOR. COMPRESS
VERT. COMPRESS
NOISE SHAPER
SUB FIFO CACHE
MAIN CH. (YUV)
HOR. COMPRESS
MAIN FIFO CACHE
NOISE SHAPER
DNR
MEMORY BUS DEVICE INTERF.
DTL I/F
MEMORY CTRL/SWI.
UNDI-THER
UNDI-THER
SCAN RATE CONVERT
UNDI-THER
OUTPUT MUX.
Y
UV
MODE CONTROL
DISPLAY CONTROL
7300
ADOC BEF
13.5 / 27 MHz @ 720 ppl
27 / 54 MHz @ 1440 ppl
LUMINANCE SHARPNESS
FILTER
SHARPNESS MEASURE
LTI
DYN. PEAKING
Σ
Y
UV
DCTI
PANO-RAMA
U
V
SKIN TONE CONTROL
BLUE STRETCH
GREEN ENHANCE
COLOUR FEATURES
RGB MATRIX
FRAME PROC.
R
G
B
TO B7
DCTI=Digital Color Transient Imrpovement
F_15040_059.eps 290405

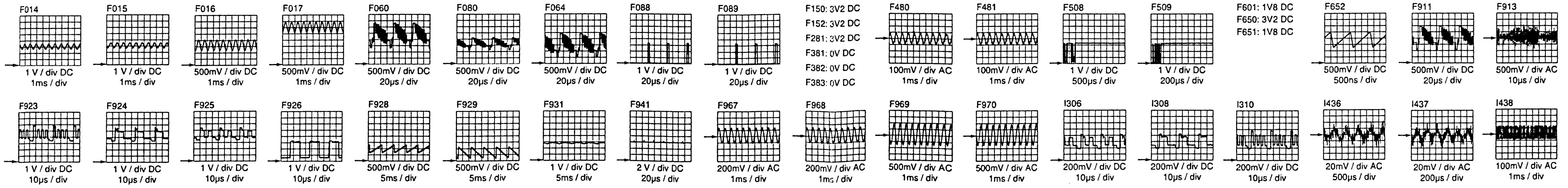
Testpoint Overview SSB

1009	A2
F014	A3
F015	A3
F016	A4
F017	A4
F020	C1
F021	A2
F041	A1
F042	A1
F045	A1
F046	B1
F047	B1
F060	C2
F064	B1
F074	A2
F075	A2
F076	A1
F077	B1
F078	A1
F080	B1
F088	A2
F089	A2
F114	C2
F115	D2
F116	C1
F132	C1
F134	B2
F135	B2
F137	C2
F138	C2
F139	B2
F150	A1
F152	C1
F159	A2
F281	B4
F282	A4
F341	C4
F346	C4
F348	A1
F351	C4
F354	C3
F355	C5
F357	D5
F358	C5
F381	C3
F382	C4
F383	C3
F384	C3
F385	C3
F386	C4
F387	C3
F389	C3
F390	C3
F391	C3
F437	B4
F438	B3
F439	B4
F448	B4
F449	B4
F480	A5
F481	A5
F508	B4
F509	B4
F510	A3
F511	B3
F512	B3
F513	B3
F514	B3
F515	A7
F516	B4
F517	B4
F518	B4
F519	B3
F520	B4
F521	B3
F522	B3
F523	B3
F524	C4
F527	C2
F532	B3
F533	B4
F534	B4
F537	C4
F538	B4
F539	B4
F540	B4
F541	B4
F542	B4
F543	B4
F544	B4
F550	B3
F551	B3
F570	A5
F582	B6
F584	A7
F601	B5
F650	C6
F651	B6
F652	C6
F730	B5
F790	C5
F791	B5
F792	B5
F793	C5
F794	C5
F795	C5
F797	C6
F798	C6
F799	C6
F901	D1
F902	D1
F903	D1
F904	D2
F905	D2
F906	D2
F907	C2
F909	D2
F910	D2
F911	D2
F913	C2
F915	D2
F918	D2
F919	D3
F920	D3
F921	D3
F923	D3
F924	D3
F925	D3
F926	D3
F928	D3
F929	D3
F931	D3
F932	D3
F933	D4
F935	D3
F936	D3
F937	D3
F938	C4
F939	D2
F940	D4
F941	D4
F943	D4
F944	D4
F947	C5
F948	D5
F949	D5
F950	D5
F951	D5
F952	D5
F953	D5
F955	D5
F956	D5
F958	D5
F959	D5
F960	D5
F961	D6
F962	D5
F963	D6
F964	D6
F965	D6
F966	D6
F967	D6
F968	D6
F969	D6
F970	D6
F972	D7
F973	D6
F974	D6
F975	D7
F976	D7
F977	D6
F978	D7
F979	D7
F980	D7
I001	C1
I002	A2
I003	A2
I004	B2
I005	B1
I006	A2
I007	A2
I008	A2
I009	B2
I010	A2
I061	C2
I062	B1
I063	C1
I064	B1
I101	C2
I102	B2
I103	B2
I104	C2
I105	B2
I106	B3
I107	B2
I108	B2
I151	B1
I152	B1
I153	B2
I154	B2
I281	C2
I301	C4
I302	C4
I303	C4
I304	C4
I305	C4
I306	C4
I307	C4
I308	D4
I309	C4
I310	D4
I341	B5
I342	C5
I343	C5
I344	C5
I345	C6
I346	C5
I347	C5
I348	C5
I349	C5
I350	C5
I381	C3
I382	C3
I431	A4
I432	A4
I433	A3
I434	A3
I435	A4
I436	A4
I437	A4
I438	A4
I439	A3
I440	A4
I441	A4
I442	A4
I443	A5
I444	A5
I445	A5
I446	A5
I447	A6
I448	A6
I501	C4
I502	C6
I601	B5
I651	C7


SIDE A
1
2
3
4
5
6
7
A
B
C
D
F045 F041
F042
F021
F074 F075
F150 F159 F088 1009
F348 1003 F089 1008 1006
F076 1002 1007
F078 1010
F064 1009
1152 1064 1153
F077 1151 1154
F134 F139 1108
1004 1107
F046 F080 F135 1102 1106
1005 1105 1103
1062 F047
1101 1104
1063 F060
1061 F138
F020 1001 F114
F137 F527
F132 F907
F116 1281 F913
F152 F115
F904 F939 F937
F932 F936
F909 F915 F935
F903 F911 F918 F920 F931
F906
F902 F910 F919 F923 F925 F928
F901 F905 F921 F924 F926 F929
1434 1433 1431
1439 1438 1437 1432 1435
1436 1440 1442 F016 1443
1441 F017 F570
F015 1444
F014 F510 F282
F511 F513 F517 F448
F519 F512 F516 F449
F514 F550 F437 F518 F281
F438 F439
F523 F522 F543 F539
F520 F533 F540
F521 F532
F534 F544 F541 F538
F542
F551 F508 F509
F341
F389 F390 2583
F382 F351
F387 1382 2582 S5 F524 1303
F383 F391 1501
F385 1305
F537 F346 1304
F354 F381 1309
F938 1307
1381 F384 F386
1308
1310
F933 F940 F941 F943
F944
F480 1446 1445
F481
1447
1448
F515 F584
F601 F651 F582
F730 F791
F792
1341
1601
F793
1344 F798
1342 F790 F795 F794
F652 F797
1651
1343
F799 F650
1301 1350 1346 F355
F947 1502
1349 1348
1306 1302 F358 1345
1347 F972 F975 F976
F357
F951 F962
F948 F952 F960 F964 F966 F978
F974
F950 F955 F958 F961 F965 F968 F970 F977 F979
F949 F953 F956 F959 F963 F967 F969 F973 F980
3139 123 5536.2


6
7
A
B
C
63
S4
62
S3
61
S2
60
S1
SIDE B
7100
1
10
18





F150: 3V2 DC
F152: 3V2 DC
F281: 3V2 DC
F381: 0V DC
F382: 0V DC
F383: 0V DC

F601: 1V8 DC
F650: 3V2 DC
F651: 1V8 DC

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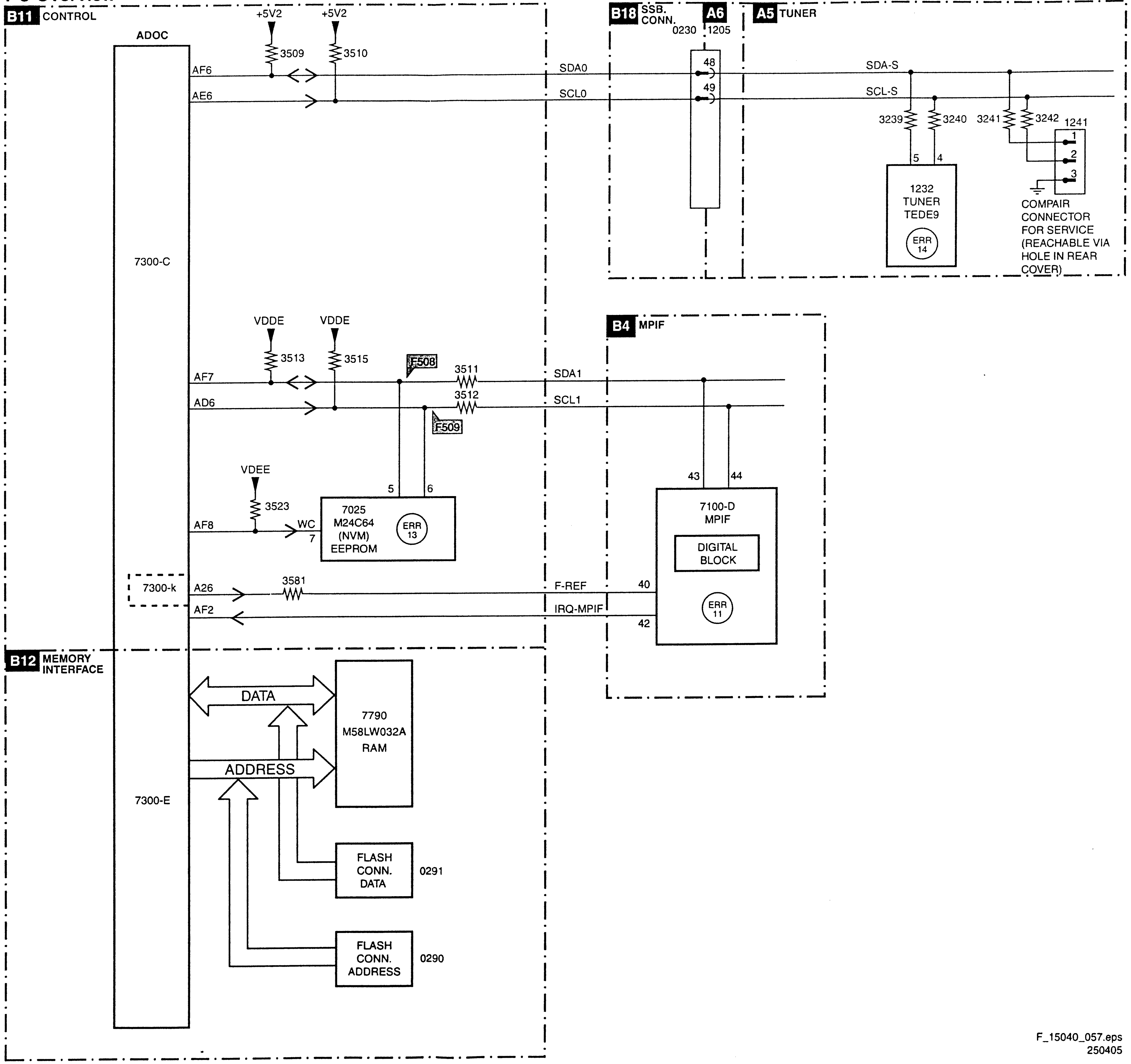
I2C Overview

I^{2}C Overview


B11 CONTROL
ADOC
+5V2
+5V2
3509
3510
AF6
AE6
SDA0
SCL0
7300-C
VDDE
VDDE
3513
3515
F508
3511
3512
AF7
AD6
SDA1
SCL1
F509
VDEE
3523
5
6
AF8
WC
7
7025
M24C64
(NVM)
EEPROM
ERR 13
7300-k
A26
3581
AF2
F-REF
IRQ-MPIF
B12 MEMORY INTERFACE
DATA
ADDRESS
7790
M58LW032A
RAM
7300-E
FLASH CONN. DATA
0291
FLASH CONN. ADDRESS
0290
B18 SSB. CONN.
0230
A6
1205
48
49
A5 TUNER
SDA-S
SCL-S
3239
3240
3241
3242
1241
1
2
3
5
4
1232
TUNER
TEDE9
ERR 14
COMPAIR CONNECTOR FOR SERVICE (REACHABLE VIA HOLE IN REAR COVER)
B4 MPIF
43
44
7100-D
MPIF
DIGITAL BLOCK
40
42
ERR 11

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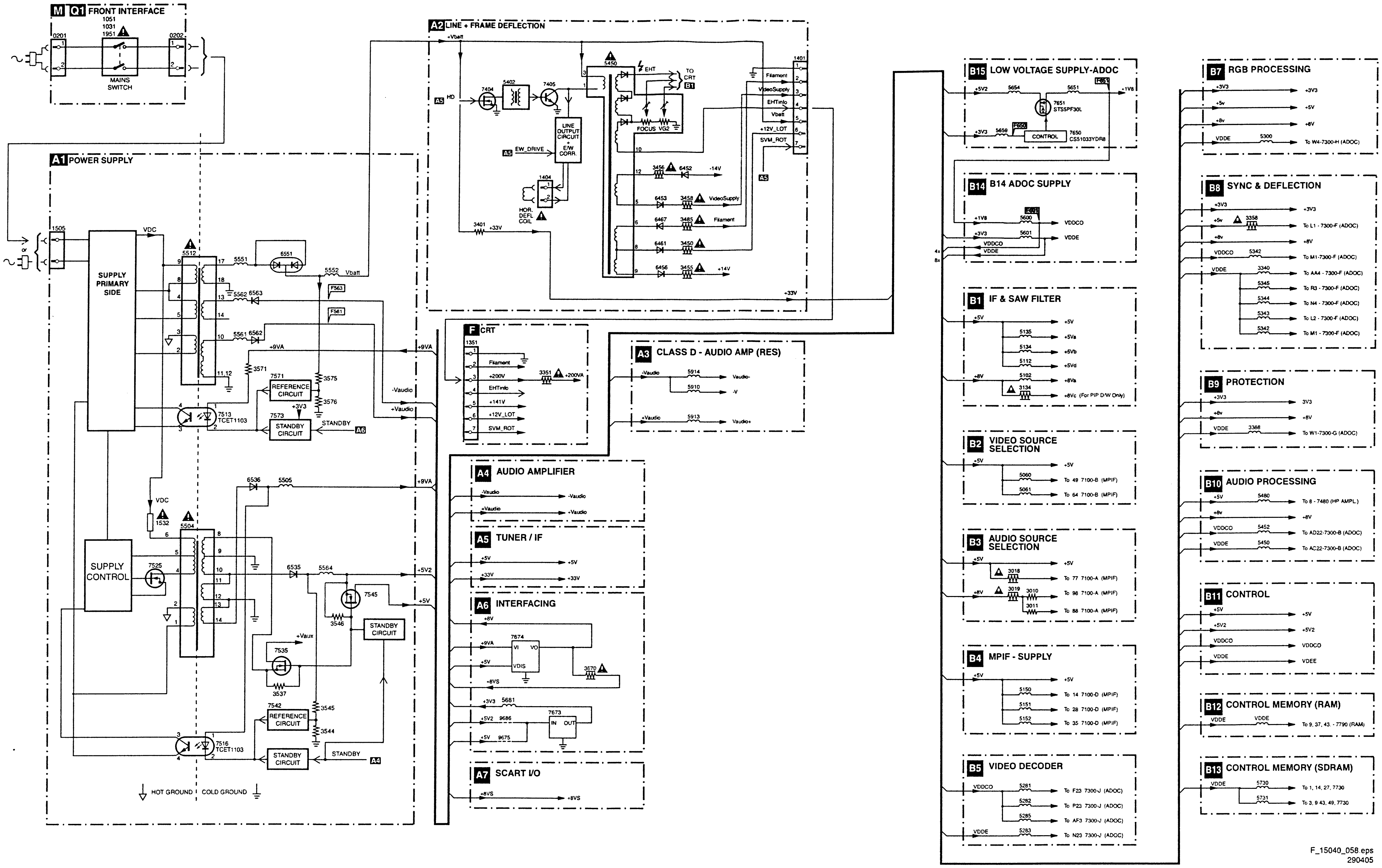
Supply Lines Overview

SUPPLY LINES OVERVIEW


M Q1 FRONT INTERFACE
1051
1031
1951
0201
0202
MAINS SWITCH
A1 POWER SUPPLY
1505
VDC
SUPPLY PRIMARY SIDE
5512
5551
6551
5552
Vbatt
5562 6563
5561 6562
+9VA
3571
7571
REFERENCE CIRCUIT
3575
3576
+3V3
7573
STANDBY CIRCUIT
STANDBY
A6
7513 TCET1103
-Vaudio
+Vaudio
F563
F561
VDC
1532
5504
6536
5505
+9VA
SUPPLY CONTROL
7525
6535
5564
+5V2
+5V
7545
3546
STANDBY CIRCUIT
+Vaux
7535
3537
7542
REFERENCE CIRCUIT
3545
3544
7516 TCET1103
STANDBY CIRCUIT
STANDBY
A4
HOT GROUND
COLD GROUND
A2 LINE + FRAME DEFLECTION
+Vbatt
A5 HD
7404
5402
7405
LINE OUTPUT CIRCUIT + E/W CORR.
A5 EW_DRIVE
1404
HOR. DEFL COIL
3401 +33V
5450
EHT
TO CRT B1
FOCUS VG2
1401
Filament
VideoSupply
EHTinfo
Vbatt
+12V_LOT
SVM_ROT
A5
3456 6452 -14V
6453 3458 VideoSupply
6467 3485 Filament
6461 3450
6456 3455 +14V
+33V
F CRT
1351
Filament
+200V
EHTinfo
+141V
+12V_LOT
SVM_ROT
3351 +200VA
A3 CLASS D - AUDIO AMP (RES)
-Vaudio 5914 Vaudio-
5910 -V
+Vaudio 5913 Vaudio+
A4 AUDIO AMPLIFIER
-Vaudio -Vaudio
+Vaudio +Vaudio
A5 TUNER / IF
+5V +5V
+33V +33V
A6 INTERFACING
+8V
+9VA 7674 VI VO
+5V VDIS
+8VS
3670
+3V3 5681
+5V2 9686 7673 IN OUT
+5V 9675
A7 SCART I/O
+8VS +8VS
B15 LOW VOLTAGE SUPPLY-ADOC
+5V2 5654 5651 F651 +1V8
7651 STS5PF30L
F650
+3V3 5659 CONTROL 7650 CS51033YDR8
B14 B14 ADOC SUPPLY
F601
+1V8 5600 VDDCO
+3V3 5601 VDDE
VDDCO
VDDE
4x
8x
B1 IF & SAW FILTER
+5V +5V
5135 +5Va
5134 +5Vb
5112 +5Vd
+8V 5102 +8Va
3134 +8Vc (For PIP D/W Only)
B2 VIDEO SOURCE SELECTION
+5V +5V
5060 To 49 7100-B (MPIF)
5061 To 64 7100-B (MPIF)
B3 AUDIO SOURCE SELECTION
+5V +5V
3018 To 77 7100-A (MPIF)
+8V 3019 3010 To 98 7100-A (MPIF)
3011 To 88 7100-A (MPIF)
B4 MPIF - SUPPLY
+5V +5V
5150 To 14 7100-D (MPIF)
5151 To 28 7100-D (MPIF)
5152 To 35 7100-D (MPIF)
B5 VIDEO DECODER
VDDCO 5281 To F23 7300-J (ADOC)
5282 To P23 7300-J (ADOC)
5285 To AF3 7300-J (ADOC)
VDDE 5283 To N23 7300-J (ADOC)
B7 RGB PROCESSING
+3V3 +3V3
+5v +5V
+8v +8V
VDDE 5300 To W4-7300-H (ADOC)
B8 SYNC & DEFLECTION
+3V3 +3V3
+5v 3358 To L1 - 7300-F (ADOC)
+8v +8V
VDDCO 5342 To M1-7300-F (ADOC)
VDDE 3340 To AA4 - 7300-F (ADOC)
5345 To R3 - 7300-F (ADOC)
5344 To N4 - 7300-F (ADOC)
5343 To L2 - 7300-F (ADOC)
5342 To M1 - 7300-F (ADOC)
B9 PROTECTION
+3V3 3V3
+8v +8V
VDDE 3388 To W1-7300-G (ADOC)
B10 AUDIO PROCESSING
+5V 5480 To 8 - 7480 (HP AMPL.)
+8v +8V
VDDCO 5452 To AD22-7300-B (ADOC)
VDDE 5450 To AC22-7300-B (ADOC)
B11 CONTROL
+5V +5V
+5V2 +5V2
VDDCO VDDCO
VDDE VDEE
B12 CONTROL MEMORY (RAM)
VDDE VDDE To 9, 37, 43, - 7790 (RAM)
B13 CONTROL MEMORY (SDRAM)
VDDE 5730 To 1, 14, 27, 7730
5731 To 3, 9 43, 49, 7730

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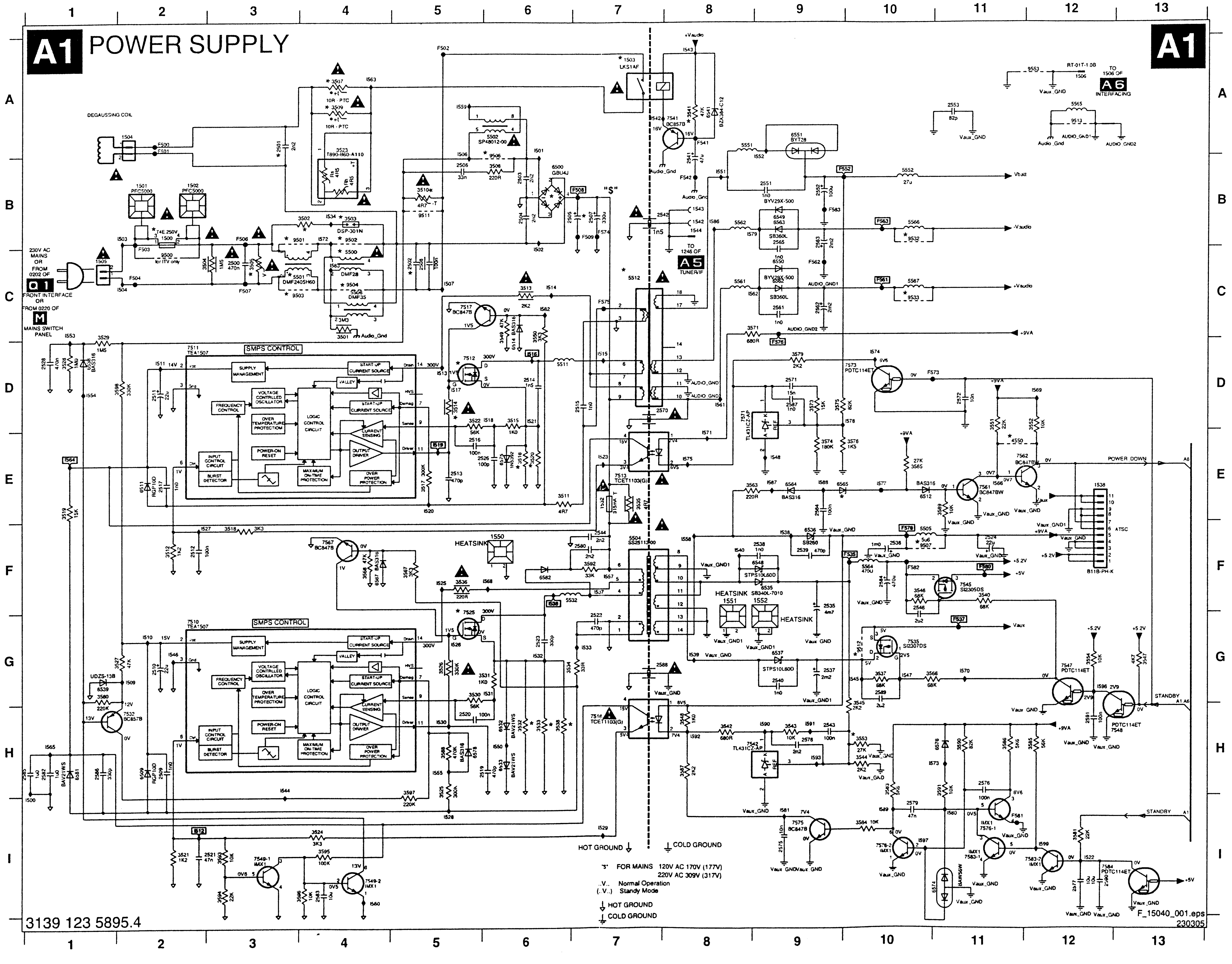
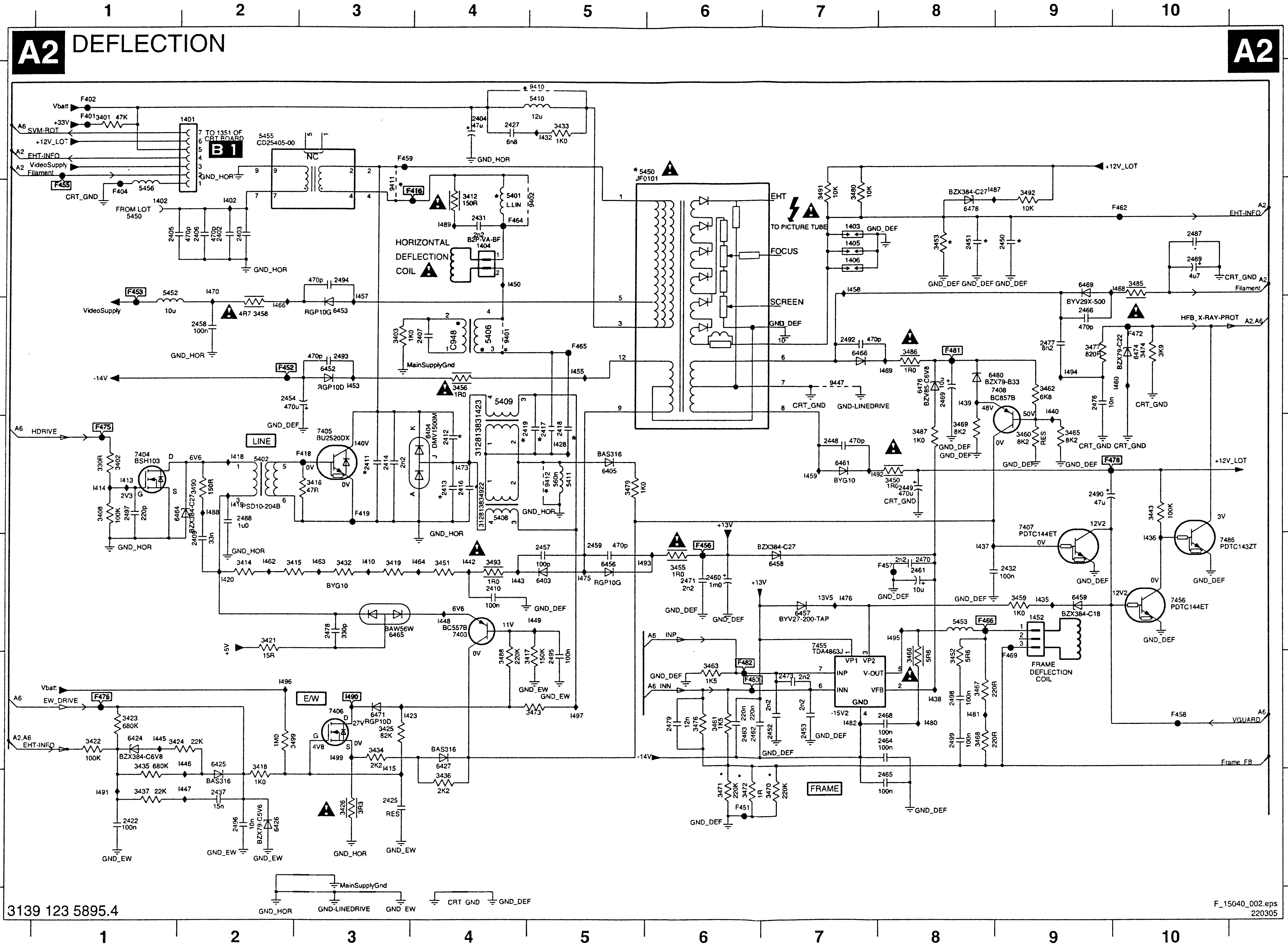
7. Circuit Diagrams and PWB Layouts

LSP: Power Supply


A1 POWER SUPPLY
A1
DEGAUSSING COIL
230V AC MAINS OR FROM 0202 OF
Q1 FRONT INTERFACE OR FROM 0220 OF
M MAINS SWITCH PANEL
SMPS CONTROL
TEA1507
SUPPLY MANAGEMENT
VOLTAGE CONTROLLED OSCILLATOR
FREQUENCY CONTROL
OVER TEMPERATURE PROTECTION
LOGIC CONTROL CIRCUIT
START-UP CURRENT SOURCE
VALLEY
CURRENT SENSING
OUTPUT DRIVER
POWER-ON RESET
INPUT CONTROL CIRCUIT
BURST DETECTOR
MAXIMUM ON-TIME PROTECTION
OVER POWER PROTECTION
HEATSINK
TO 1246 OF A5 TUNER/IF
TO 1506 OF A6 INTERFACING
Vbatt
-Vaudio
+Vaudio
+9VA
+5.2V
+5V
Vaux
POWER DOWN
STANDBY
ATSC
B11B-PH-K
Vaux_GND
AUDIO_GND
HOT GROUND
COLD GROUND
"$" FOR MAINS 120V AC 170V (177V)
220V AC 309V (317V)
..V.. Normal Operation
(.V..) Standy Mode
3139 123 5895.4
F_15040_001.eps
230305
1 2 3 4 5 6 7 8 9 10 11 12 13
A B C D E F G H I

1500	B2
1501	B2
1502	B2
1503	A7
1504	A2
1505	C1
1506	A13
1532	E7
1538	E12
1542	B8
1543	B8
1544	B8
1550	F6
1551	F8
1552	F9
2500	C3
2501	A3
2502	C5
2503	B6
2504	B6
2505	B6
2506	B5
2507	B7
2508	C5
2509	H2
2510	G2
2511	D2
2512	F2
2513	E5
2514	D6
2515	D7
2516	E5
2517	E2
2519	H6
2520	H5
2521	I3
2522	G7
2523	G6
2524	F11
2526	E6
2528	D1
2535	F9
2536	F10
2537	G9
2538	F9
2539	F9
2540	G9
2541	B8
2542	B7
2543	H9
2544	F7
2546	F10
2551	B9
2552	B9
2553	A11
2561	C9
2562	C9
2563	B9
2564	E9
2565	B9
2570	D7
2571	D9
2572	D11
2575	I9
2576	H11
2577	I12
2578	H9
2579	I10
2580	F7
2582	H1
2583	I4
2584	F10
2585	H1
2586	H1
2587	D9
2588	G7
2589	G10
2590	I12
2591	H12
3501	C4
3502	B4
3503	B4
3504	C2
3505	C3
3507	A4
3508	B6
3509	A4
3510	B5
3511	E6
3512	F2
3513	C6
3514	D5
3515	D6
3516	E6
3517	E5
3518	F3
3519	E1
3520	E6
3521	I2
3522	D5
3523	A4
3524	I4
3525	H5
3526	G5
3527	G2
3528	D1
3529	C1
3530	G5
3531	G6
3532	H6
3533	H6
3534	G6
3535	E7
3536	F5
3537	G10
3538	H6
3540	F11
3541	A8
3542	H8
3543	H9
3544	H10
3545	G10
3546	F10
3547	G13
3548	H8
3549	C6
3550	C6
3551	D11
3552	D12
3553	H10
3554	G12
3563	E8
3565	E10
3566	G10
3567	F5
3568	F4
3571	C8
3573	D9
3574	E9
3575	D9
3576	E10
3579	D9
3580	G1
3581	I12
3583	H10
3584	I10
3585	H12
3586	H11
3587	H8
3588	H5
3589	E11
3590	H11
3591	H11
3592	F7
3593	I3
3594	I3
3595	I4
3596	I4
3597	H5
3598	D2
4550	E11
5500	C4
5501	C3
5502	A6
5504	F7
5505	F10
5506	C4
5511	D6
5512	C7
5532	F7
5551	A8
5552	B10
5561	C8
5562	B8
5564	F10
5565	A12
5566	B10
5567	C10
6500	B6
6509	H2
6511	E2
6512	E10
6514	D6
6532	H6
6533	H6
6535	F9
6536	F9
6537	G9
6538	D1
6539	G1
6541	A8
6548	F9
6549	B9
6550	C9
6551	A9
6562	C9
6563	B9
6564	E9
6565	E9
6567	F4
6574	I11
6575	E6
6576	H11
6578	H5
6581	H1
6582	F6
7510	G2
7511	D2
7512	D5
7513	E7
7516	H7
7517	C5
7525	G5
7532	H2
7535	G10
7541	A8
7542	H8
7545	F11
7547	G12
7548	H13
7549-1	I3
7549-2	I4
7561	E11
7562	E11
7567	F4
7571	D8
7573	D10
7575	I9
7576-1	I11
7576-2	I10
7583-1	I11
7583-2	I12
7584	I12
9500	C2
9501	B3
9502	B4
9503	C3
9504	C4
9506	B6
9507	F10
9511	B5
9512	G10
9513	A12
9532	B10
9533	C10
9553	A12
F500	A2
F501	A2
F502	A5
F503	C2
F504	C2
F506	B3
F507	C3
F508	B7
F509	B7
F535	F10
F537	G11
F541	A8
F542	B8
F552	B9
F561	C10
F562	C9
F563	B10
F573	D10
F574	B7
F575	C7
F576	D9
F578	F10
F580	F11
F581	I11
F582	F10
F583	B9
I500	I1
I501	A6
I502	C6
I503	B2
I504	C2
I506	A5
I507	C5
I509	G2
I510	G2
I511	D2
I512	I2
I513	D5
I514	C6
I515	D7
I516	D6
I517	D5
I518	D6
I519	E5
I520	E5
I521	D6
I522	I12
I523	E7
I525	F5
I526	G5
I527	F2
I528	I5
I529	I7
I530	H5
I531	G6
I532	G6
I533	G7
I534	B4
I536	F6
I537	F7
I538	F9
I539	G8
I540	F8
I542	A7
I543	A8
I544	H3
I545	G10
I546	G2
I547	G10
I548	E9
I550	H6
I551	B8
I552	B9
I553	C1
I554	D1
I555	H5
I557	F7
I558	F8
I559	A5
I560	I4
I561	D8
I562	C8
I563	A4
I564	E1
I565	H1
I566	E11
I568	F6
I569	D12
I570	G11
I571	E8
I572	B4
I573	H11
I574	D10
I575	E8
I577	E10
I578	D10
I579	B8
I580	I11
I581	I9
I582	C6
I583	C4
I586	B8
I587	E9
I588	E9
I589	I10
I590	H9
I591	H9
I592	H8
I593	H9
I596	G12
I597	I10
I599	I12

LSP: Deflection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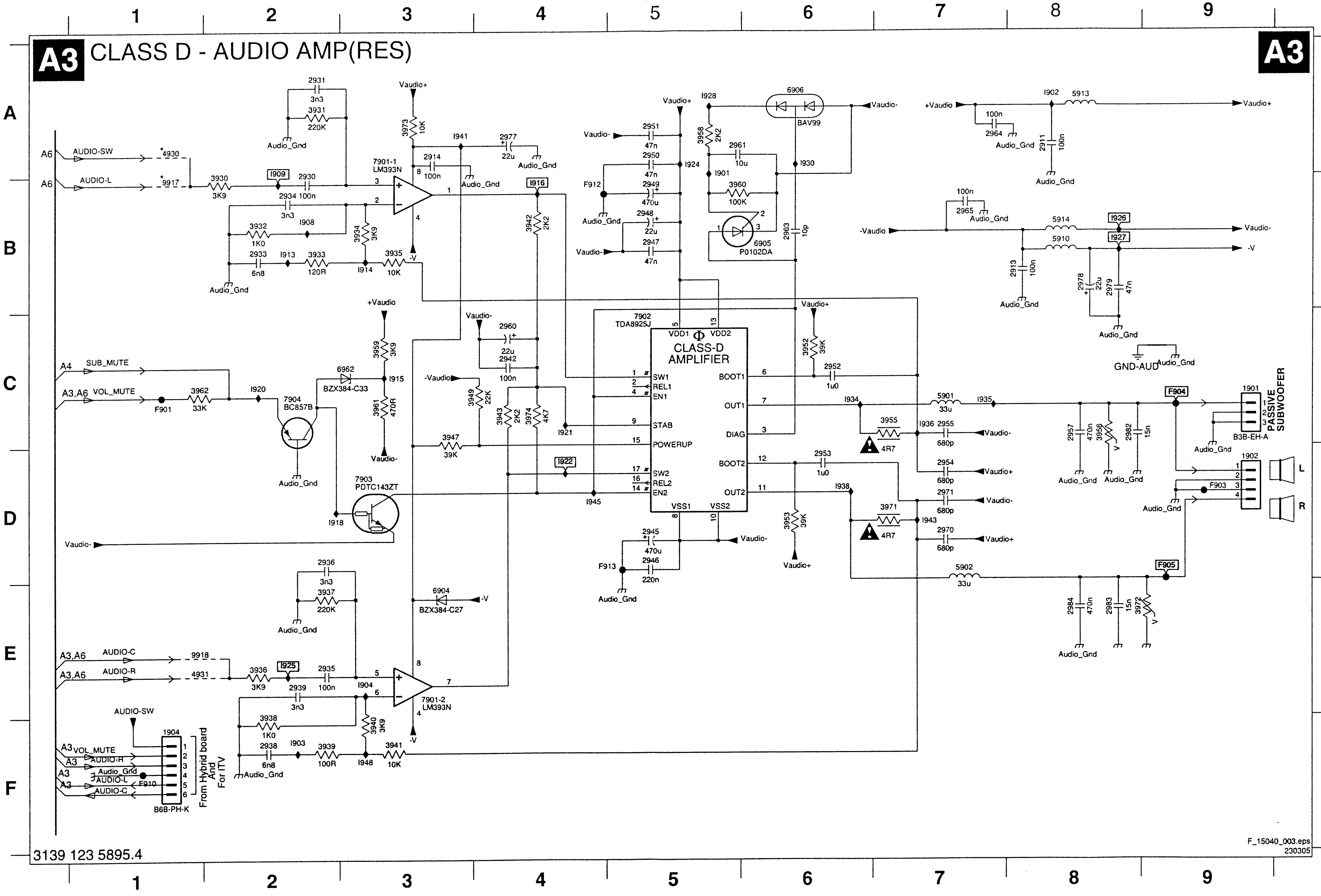
A2
1 2 3 4 5 6 7 8 9 10
A B C D E F G
Vbatt
+33V
SVM-ROT
+12V_LOT
EHT-INFO
VideoSupply
Filament
CRT_GND
TO 1351 OF CRT BOARD
B1
1401
5455 CD25405-00
NC
GND_HOR
FROM LOT 5450
HORIZONTAL DEFLECTION COIL
LINE
7405 BU2520DX
7404 BSH103
HDRIVE
VideoSupply
-14V
MainSupplyGnd
*5450 JF0101
EHT
TO PICTURE TUBE
FOCUS
SCREEN
GND_DEF
CRT_GND
GND-LINEDRIVE
+12V_LOT
HFB_X-RAY-PROT
7408 BC857B
7407 PDTC144ET
7486 PDTC143ZT
7456 PDTC144ET
+13V
7455 TDA4863J
FRAME DEFLECTION COIL
FRAME
E/W
7406
7403 BC557B
EW_DRIVE
EHT-INFO
Vbat
+5V
VGUARD
Frame_FB
A6 INP
A6 INN
GND_EW
GND_HOR
GND-LINEDRIVE
GND_EW
CRT_GND
GND_DEF
3139 123 5895.4
F_15040_002.eps
220305

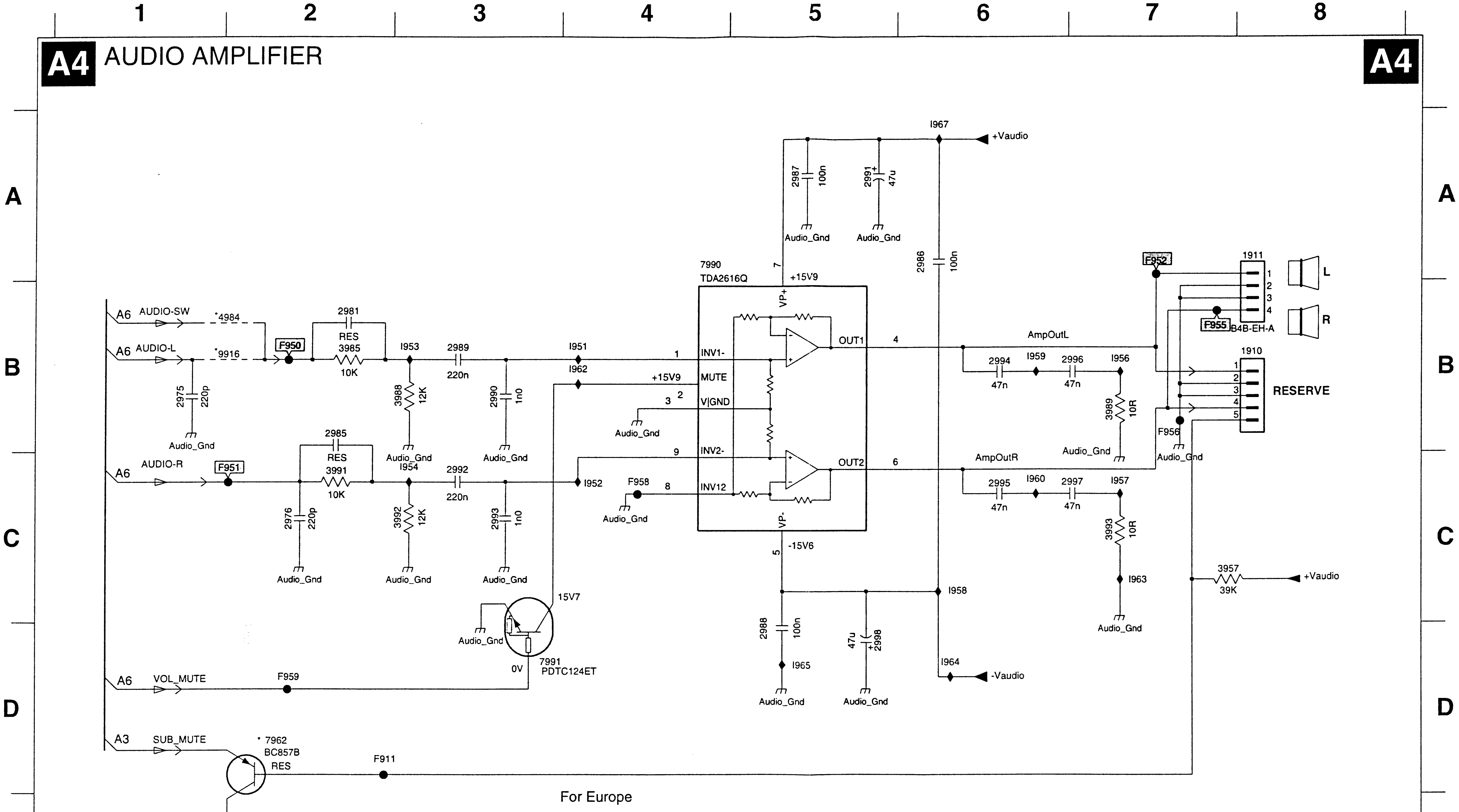
1401	A1
1402	B1
1403	B7
1404	B4
1405	B7
1406	B7
1452	E9
2402	B2
2403	B2
2404	A4
2405	B1
2406	B2
2407	C4
2409	E2
2410	E4
2411	D3
2412	D4
2413	D4
2414	D3
2416	D4
2417	D5
2418	D5
2419	D4
2422	G1
2425	G3
2427	A4
2431	B4
2432	E9
2437	G2
2448	D7
2449	D8
2450	B9
2451	B8
2452	F7
2453	F7
2454	C2
2457	E5
2458	C2
2459	E5
2460	E6
2461	E8
2462	F6
2463	F6
2464	F8
2465	G8
2466	C9
2468	F8
2469	C8
2470	E8
2471	E6
2473	F7
2476	C9
2477	C9
2478	E3
2479	F6
2487	B10
2488	D2
2489	B10
2490	D9
2492	C7
2493	C3
2494	B3
2495	F5
2496	G2
2497	D1
2498	F8
2499	F8
3401	A1
3402	D1
3403	C3
3408	D1
3412	B4
3414	E2
3415	E2
3416	D3
3417	F5
3418	F2
3419	E3
3421	E2
3422	F1
3423	F1
3424	F1
3425	F3
3426	G3
3432	E3
3433	A5
3434	F3
3435	F1
3436	G4
3437	G1
3443	D10
3450	D8
3451	E4
3452	F8
3453	B8
3455	E6
3456	C4
3458	C2
3459	E9
3460	D9
3461	F6
3462	C9
3463	F6
3465	D9
3466	F8
3467	F8
3468	F8
3469	D8
3470	G7
3471	G6
3472	G6
3473	F5
3474	C10
3476	F6
3477	C9
3479	D5
3480	B7
3485	B10
3486	C8
3487	D8
3488	F4
3490	D2
3491	B7
3492	B9
3493	E4
3499	F2
5401	B4
5402	D2
5406	C4
5408	D4
5409	C4
5410	A5
5411	D5
5450	A6
5452	B1
5453	E8
5455	A2
5456	B1
6403	E5
6404	D4
6405	D5
6424	F1
6425	F2
6426	G2
6427	F4
6452	C3
6453	C3
6456	E5
6457	E7
6458	E7
6459	E9
6461	D7
6464	D2
6465	E3
6466	C7
6469	B9
6471	F3
6474	C10
6476	C8
6478	B8
6480	C9
7403	E4
7404	D1
7405	D3
7406	F3
7407	D9
7408	C9
7455	E7
7456	E10
7486	E10
9401	C4
9402	B5
9410	A5
9411	B3
9412	D5
9447	C7
F401	A1
F402	A1
F404	B1
F416	B4
F418	D3
F419	D3
F451	G6
F452	C2
F453	B1
F455	B1
F456	E6
F457	E8
F458	F10
F459	A3
F462	B10
F464	B4
F465	C5
F466	E8
F469	F9
F472	C10
F475	D1
F476	F1
F478	D10
F481	C8
F482	F6
F483	F6
I402	B2
I410	E3
I413	D1
I414	D1
I415	F3
I418	D2
I419	D2
I420	E2
I423	F3
I428	D5
I432	A5
I435	E9
I436	E10
I437	E8
I438	F8
I439	C8
I440	C9
I442	E4
I443	E4
I445	F1
I446	F2
I447	G2
I448	E4
I449	E5
I450	B4
I453	C3
I455	C5
I457	B3
I458	B7
I459	D7
I460	C10
I462	E2
I463	E3
I464	E4
I466	C2
I468	B10
I469	C8
I470	B2
I473	D4
I475	E5
I476	E7
I480	F8
I481	F8
I482	F7
I487	B8
I488	D2
I489	B4
I490	F3
I491	G1
I492	D7
I493	E5
I494	C9
I495	E8
I496	F2
I497	F5
I499	F3

LSP: Class D Audio Amplifier (Res)


A3
CLASS D - AUDIO AMP(RES)
1 2 3 4 5 6 7 8 9
A B C D E F
AUDIO-SW
AUDIO-L
SUB_MUTE
VOL_MUTE
AUDIO-C
AUDIO-R
A6
A4
A3,A6
4930
9917
9918
4931
F901
F910
F912
F913
F903
F904
F905
7901-1 LM393N
7901-2 LM393N
7902 TDA8925J
CLASS-D AMPLIFIER
VDD1
VDD2
SW1
REL1
EN1
STAB
POWERUP
SW2
REL2
EN2
VSS1
VSS2
BOOT1
OUT1
DIAG
BOOT2
OUT2
7903 PDTC143ZT
7904 BC857B
6904 BZX384-C27
6962 BZX384-C33
6905 P0102DA
6906 BAV99
Vaudio+
Vaudio-
+Vaudio
-Vaudio
-V
Audio_Gnd
GND-AUD
1901 B3B-EH-A
PASSIVE SUBWOOFER
1902
L
R
1904 B6B-PH-K
From Hybrid board And For ITV
5901 33u
5902 33u
5910
5913
5914
3955 4R7
3971 4R7
3931 220K
3937 220K
3930 3K9
3936 3K9
3973 10K
3959 3K9
3961 470R
3962 33K
3947 39K
3949 22K
3942 2K2
3943 2K2
3974 4K7
3952 39K
3953 39K
3958 2K2
3960 100K
2931 3n3
2936 3n3
2977 22u
2960 22u
2942 100n
2945 470u
2946 220n
2949 470u
2948 22u
2952 1u0
2953 1u0
2955 680p
2954 680p
2971 680p
2970 680p
2957 470n
2984 470n
2982 15n
2983 15n
2978 22u
2979 47n
3139 123 5895.4
F_15040_003.eps
230305

1901	C9
1902	D9
1904	F1
2911	A8
2913	B8
2914	A3
2930	B2
2931	A2
2933	B2
2934	B2
2935	E2
2936	D2
2938	F2
2939	E2
2942	C4
2945	D5
2946	D5
2947	B5
2948	B5
2949	B5
2950	A5
2951	A5
2952	C6
2953	D6
2954	D7
2955	C7
2957	C8
2960	C4
2961	A5
2963	B6
2964	A7
2965	B7
2970	D7
2971	D7
2977	A4
2978	B8
2979	B8
2982	C8
2983	E8
2984	E8
3930	B2
3931	A2
3932	B2
3933	B2
3934	B3
3935	B3
3936	E2
3937	E2
3938	F2
3939	F2
3940	F3
3941	F3
3942	B4
3943	C4
3947	C3
3949	C4
3952	C6
3953	D6
3955	C7
3956	C8
3958	A5
3959	C3
3960	B5
3961	C3
3962	C1
3971	D7
3972	E8
3973	A3
3974	C4
4930	A1
4931	E1
5901	C7
5902	D7
5910	B8
5913	A8
5914	B8
6904	E3
6905	B6
6906	A6
6962	C3
7901-1	A3
7901-2	E3
7902	C5
7903	D3
7904	C2
9917	B1
9918	E1
F901	C1
F903	D9
F904	C9
F905	D9
F910	F1
F912	B4
F913	D5
I901	A5
I902	A8
I903	F2
I904	E3
I908	B2
I909	A2
I913	B2
I914	B3
I915	C3
I916	B4
I918	D2
I920	C2
I921	C4
I922	D4
I924	A5
I925	E2
I926	B8
I927	B8
I928	A5
I930	A6
I934	C6
I935	C7
I936	C7
I938	D6
I941	A3
I943	D7
I945	D4
I948	F3

LSP: Audio Amplifier


A4
AUDIO AMPLIFIER
A4
A6 AUDIO-SW
*4984
A6 AUDIO-L
*9916
F950
2981
RES
3985
10K
2975
220p
Audio_Gnd
1953
2989
220n
3988
12K
2990
1n0
1951
1962
A6 AUDIO-R
F951
2985
RES
3991
10K
2976
220p
1954
2992
220n
3992
12K
2993
1n0
1952
F958
7990
TDA2616Q
+15V9
VP+
INV1-
MUTE
V|GND
INV2-
INV12
OUT1
OUT2
VP-
-15V6
1967
+Vaudio
2987
100n
2991
47u
2986
100n
AmpOutL
AmpOutR
2994
47n
1959
2996
47n
1956
3989
10R
2995
47n
1960
2997
47n
1957
3993
10R
1963
1958
2988
100n
1965
2998
47u
1964
-Vaudio
F952
1911
L
R
F955
B4B-EH-A
1910
RESERVE
F956
3957
39K
+Vaudio
15V7
7991
PDTC124ET
0V
A6 VOL_MUTE
F959
A3 SUB_MUTE
* 7962
BC857B
RES
F911
1 2 3 4 5 6 7 8
A B C D E

For Europe

ITEM	SIZE/TUBE 29RF A68ERF182X044	28WSRF A66ERF172X044	32WSRF A66ERF172X044	28BLD A66EAK075X054
1910	NOT USED	NOT USED	NOT USED	NOT USED
1911	USED	USED	USED	USED
4984	NOT USED	NOT USED	NOT USED	NOT USED
7962	NOT USED	NOT USED	NOT USED	NOT USED
9916	USED	USED	USED	USED

"985" ~ "999"

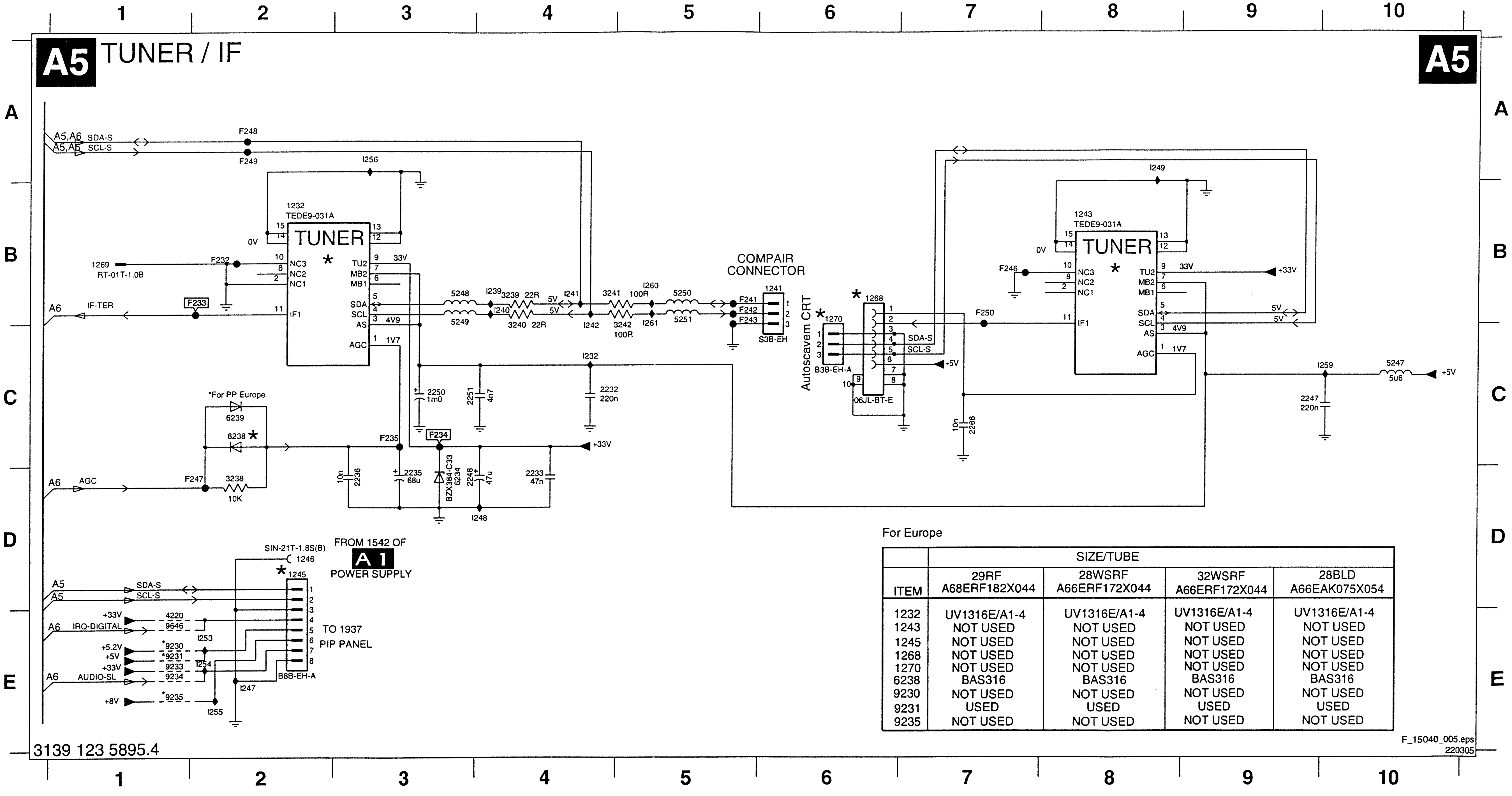
3139 123 5895.4

F_15040_004.eps
230305

1910	B8
1911	A8
2975	B1
2976	C2
2981	B2
2985	B2
2986	A6
2987	A5
2988	D5
2989	B3
2990	B3
2991	A5
2992	C3
2993	C3
2994	B6
2995	C6
2996	B7
2997	C7
2998	D5
3957	C7
3985	B2
3988	B3
3989	B7
3991	C2
3992	C3
3993	C7
4984	B2
7962	D2
7990	A4
7991	D4
9916	B2
F911	D2
F950	B2
F951	C2
F952	A7
F955	B7
F956	B7
F958	C4
F959	D2
I951	B4
I952	C4
I953	B3
I954	C3
I956	B7
I957	C7
I958	C6
I959	B6
I960	C6
I962	B4
I963	C7
I964	D6
I965	D5
I967	A6

LSP: Tuner IF

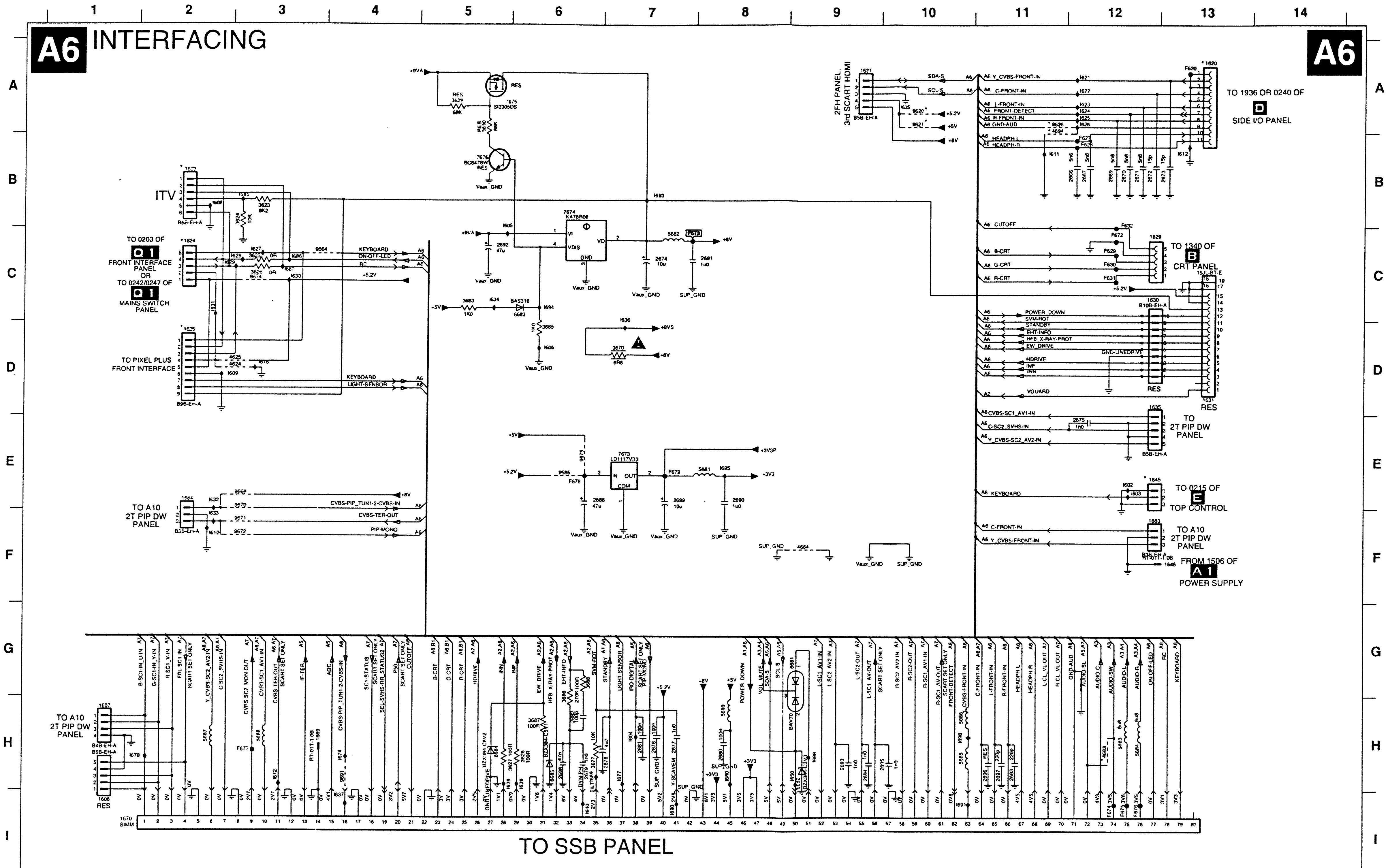
1232 B2
1241 B6
1243 B8
1245 D2
1246 D2
1268 B6
1269 B1
1270 B6
2232 C4
2233 D4
2235 D3
2236 D3
2247 C9
2248 D3
2250 C3
2251 C3
2268 C7
3238 D2
3239 B4
3240 C4
3241 B4
3242 C4
4220 E1
5247 C10
5248 B3
5249 C3
5250 B5
5251 B5
6234 D3
6238 C2
6239 C2
9230 E1
9231 E1
9233 E1
9234 E1
9235 E1
9646 E1
F232 B2
F233 B2
F234 C3
F235 C3
F241 B5
F242 B5
F243 B5
F246 B7
F247 D2
F248 A2
F249 A2
F250 B7
I232 C4
I239 B4
I240 B4
I241 B4
I242 C4
I247 E2
I248 D4
I249 A8
I253 E2
I254 E2
I255 E2
I256 A3
I259 C10
I260 B5
I261 B5


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
A5
TUNER / IF
A5
A5,A6 SDA-S
A5,A6 SCL-S
F248
F249
I256
1232
TEDE9-031A
TUNER
*
0V
15
14
13
12
10 NC3
8 NC2
2 NC1
11 IF1
9 TU2 33V
7 MB2
6 MB1
5 SDA
4 SCL
3 AS 4V9
1 AGC 1V7
1269
RT-01T-1.0B
F232
F233
A6 IF-TER
5248
5249
I239
3239 22R
I240
3240 22R
5V
5V
I241
I242
3241 100R
3242 100R
I260
I261
5250
5251
COMPAIR CONNECTOR
1241
F241
F242
F243
S3B-EH
Autoscavem CRT
*1270
B3B-EH-A
*1268
06JL-BT-E
SDA-S
SCL-S
+5V
F250
I232
2250 1m0
2251 4n7
2232 220n
*For PP Europe
6239
6238 *
F235
F234
+33V
A6 AGC
F247
3238 10K
10n 2236
2235 68u
BZX384-C33 6234
2248 47u
2233 47n
I248
1243
TEDE9-031A
TUNER
*
F246
I249
+33V
5V
5V
10n 2268
I259
5247 5u6
+5V
2247 220n
SIN-21T-1.8S(B)
1246
FROM 1542 OF
A1
POWER SUPPLY
*1245
A5 SDA-S
A5 SCL-S
+33V
4220
A6 IRQ-DIGITAL
9646
I253
+5.2V
*9230
+5V
*9231
+33V
9233
I254
A6 AUDIO-SL
9234
+8V
*9235
I255
I247
B8B-EH-A
TO 1937
PIP PANEL
3139 123 5895.4
F_15040_005.eps
220305

For Europe

	SIZE/TUBE			
ITEM	29RF A68ERF182X044	28WSRF A66ERF172X044	32WSRF A66ERF172X044	28BLD A66EAK075X054
1232	UV1316E/A1-4	UV1316E/A1-4	UV1316E/A1-4	UV1316E/A1-4
1243	NOT USED	NOT USED	NOT USED	NOT USED
1245	NOT USED	NOT USED	NOT USED	NOT USED
1268	NOT USED	NOT USED	NOT USED	NOT USED
1270	NOT USED	NOT USED	NOT USED	NOT USED
6238	BAS316	BAS316	BAS316	BAS316
9230	NOT USED	NOT USED	NOT USED	NOT USED
9231	USED	USED	USED	USED
9235	NOT USED	NOT USED	NOT USED	NOT USED

LSP: Interfacing


A6
INTERFACING
A6
ITV
TO 0203 OF
D1
FRONT INTERFACE PANEL
OR
TO 0242/0247 OF
D1
MAINS SWITCH PANEL
TO PIXEL PLUS FRONT INTERFACE
TO A10
2T PIP DW
PANEL
2FH PANEL
3rd SCART HDMI
TO 1936 OR 0240 OF
D
SIDE I/O PANEL
TO 1340 OF
B
CRT PANEL
RES
TO
2T PIP DW
PANEL
TO 0215 OF
E
TOP CONTROL
TO A10
2T PIP DW
PANEL
FROM 1506 OF
A1
POWER SUPPLY
TO A10
2T PIP DW
PANEL
TO SSB PANEL
KA78R08
LD1117V33
BC847BW
SI2305DS
BAS316
BAV70
KEYBOARD
ON-OFF-LED
RC
+5.2V
+8V
+3V3
+5V
LIGHT-SENSOR
CVBS-PIP_TUN1-2-CVBS-IN
CVBS-TER-OUT
PIP-MONO
Y_CVBS-FRONT-IN
C-FRONT-IN
L-FRONT-IN
FRONT-DETECT
R-FRONT-IN
GND-AUD
HEADPH-L
HEADPH-R
CUTOFF
B-CRT
G-CRT
R-CRT
POWER_DOWN
SVM-ROT
STANDBY
EHT-INFO
HFB_X-RAY-PROT
EW_DRIVE
GND-LINEDRIVE
HDRIVE
INP
INN
VGUARD
CVBS-SC1_AV1-IN
C-SC2_SVHS-IN
Y_CVBS-SC2_AV2-IN
SDA-S
SCL-S
Vaux_GND
SUP_GND
1670
SIMM
1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H I J K

For Europe

	SIZE/TUBE			
ITEM	29RF A68ERF182X044	28WSRF A66ERF172X044	32WSRF A66ERF172X044	28BLD A66EAK075X054
1620	USED	USED	USED	USED
1623	NOT USED	NOT USED	NOT USED	NOT USED
1624	USED	USED	USED	USED
1625	NOT USED	NOT USED	NOT USED	NOT USED
1645	USED	USED	USED	USED
4683	USED	USED	USED	USED
4694	NOT USED	NOT USED	NOT USED	NOT USED
9620	NOT USED	NOT USED	NOT USED	NOT USED
9621	USED	USED	USED	USED
9626	USED	USED	USED	USED

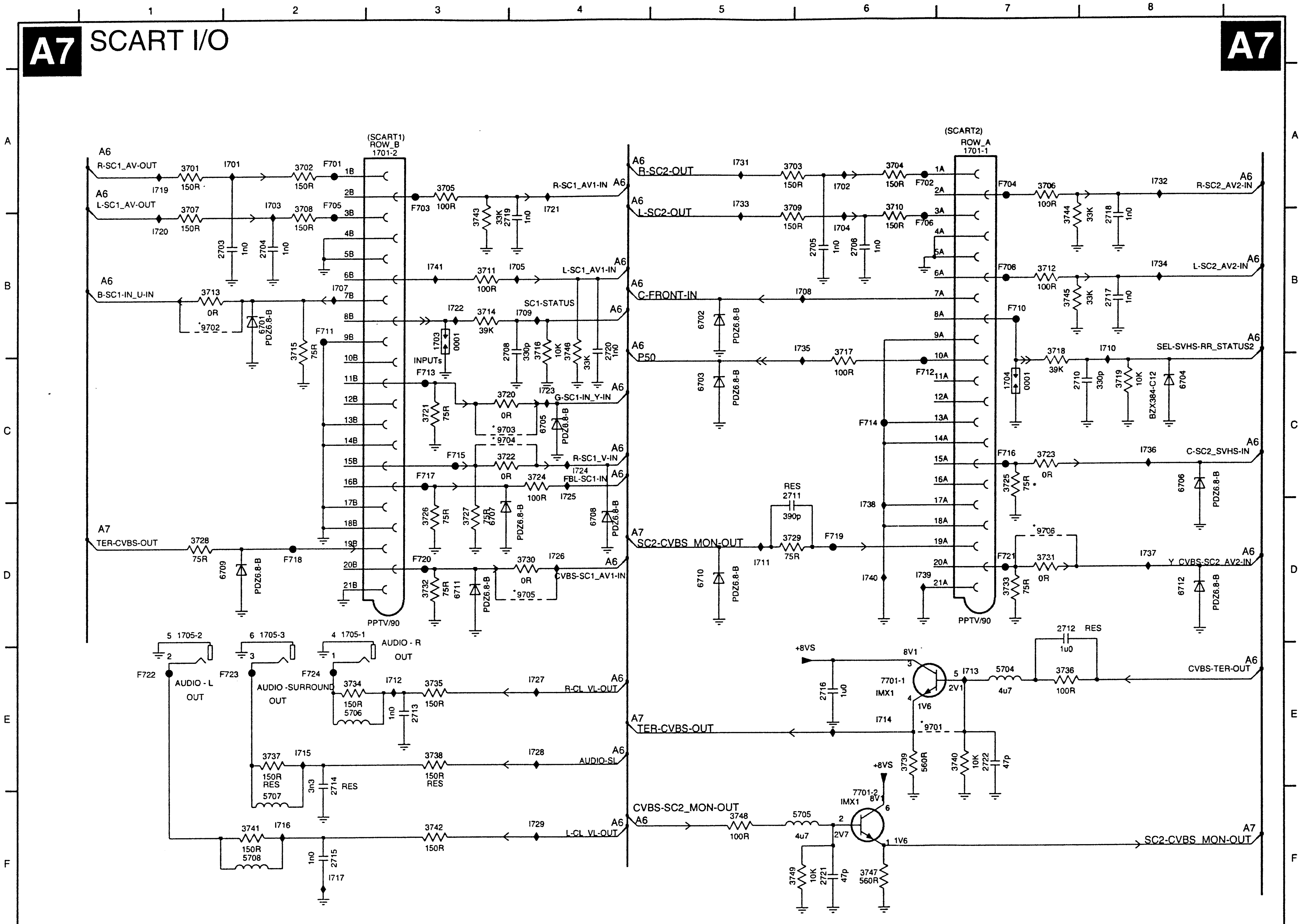
	9674	9664	4624	4625	9675	9686
PIXEL PLUS	--	--	--	JMP	JMP	--
SALSA	JMP	JMP	JMP	--	--	JMP

1607	H1
1608	I1
1620	A13
1621	A9
1623	B2
1624	C2
1625	D2
1629	C12
1630	C12
1631	D13
1635	D12
1645	E13
1646	F13
1669	H3
1670	I1
1683	F12
1684	E2
2663	H11
2666	B12
2667	B12
2669	B12
2670	B12
2671	B12
2672	B12
2673	B13
2674	C7
2675	E12
2676	H7
2677	H7
2678	H7
2679	H6
2680	H8
2681	H7
2682	H6
2688	E6
2689	E7
2690	E8
2691	C8
2692	C5
2693	H9
2694	H9
2695	H10
2696	H11
2697	H11
2698	H6
3623	B3
3624	B3
3625	C3
3626	C3
3627	H6
3628	H6
3629	A5
3630	A5
3670	D7
3677	H6
3683	C5
3685	D6
3686	G6
3687	H6
3688	G6
4624	D3
4625	D3
4683	H12
4684	F9
4694	A11
5680	H8
5681	E8
5682	C7
5683	H12
5684	H12
5685	H10
5686	H10
5687	H2
5688	H3
6681	G9
6682	H9
6683	C6
6684	H5
6685	H6
7673	E7
7674	B6
7675	A6
7676	B5
9620	A10
9621	A10
9626	A11
9664	C3
9669	E3
9670	E3
9671	F3
9672	F3
9674	C3
9675	E6
9686	E6
9691	H4
F620	A13
F627	B12
F628	B12
F629	C12
F630	C12
F631	C12
F632	B12
F672	C12
F673	C7
F674	I12
F675	I12
F676	I12
F677	H3
F678	E6
F679	E7
I602	E12
I603	E12
I604	H7
I605	B5
I606	D6
I608	B2
I609	D3
I610	F2
I611	B11
I612	B13
I616	D3
I621	A12
I622	A12
I623	A12
I624	A12
I625	A12
I626	A12
I627	C3
I628	C3
I629	C2
I630	C3
I631	C2
I632	E2
I633	F2
I634	C5
I635	A10
I636	C7
I637	I4
I638	H6
I639	H6
I640	I6
I650	H9
I672	H3
I674	H4
I677	H7
I678	H1
I680	H8
I685	B3
I686	C3
I687	C3
I688	H9
I689	H6
I690	I7
I691	I10
I693	B7
I694	C6
I695	E8
I696	H10

3139 123 5895.4

F_15040_006.eps
250405

LSP: SCART I/O


A7 SCART I/O A7
(SCART1) ROW_B 1701-2
(SCART2) ROW_A 1701-1
R-SC1_AV-OUT
L-SC1_AV-OUT
B-SC1-IN_U-IN
TER-CVBS-OUT
R-SC1_AV1-IN
L-SC1_AV1-IN
SC1-STATUS
G-SC1-IN_Y-IN
R-SC1_V-IN
FBL-SC1-IN
CVBS-SC1_AV1-IN
R-SC2-OUT
L-SC2-OUT
C-FRONT-IN
P50
SC2-CVBS_MON-OUT
R-SC2_AV2-IN
L-SC2_AV2-IN
SEL-SVHS-RR_STATUS2
C-SC2_SVHS-IN
Y_CVBS-SC2_AV2-IN
CVBS-TER-OUT
AUDIO - R OUT
AUDIO - L OUT
AUDIO -SURROUND OUT
R-CL_VL-OUT
AUDIO-SL
L-CL_VL-OUT
CVBS-SC2_MON-OUT
INPUTs
PPTV/90
+8VS
7701-1 IMX1
7701-2 IMX1
8V1
2V1
1V6
2V7
RES
PDZ6.8-B
BZX384-C12

For Europe

ITEM	SIZE/TUBE 29RF A68ERF182X044	 28WSRF A66ERF172X044	 32WSRF A66ERF172X044	 28BLD A66EAK075X054
3725	USED	USED	USED	USED
9702	USED	USED	USED	USED
9703	USED	USED	USED	USED
9704	USED	USED	USED	USED
9705	USED	USED	USED	USED
9706	USED	USED	USED	USED

3139 123 5895.4

F_15040_007.eps
220305

1701-1	A7
1701-2	A3
1703	B3
1704	C7
1705-1	D2
1705-2	D1
1705-3	D2
2703	B2
2704	B2
2705	B6
2706	B6
2708	B4
2710	C8
2711	C5
2712	D7
2713	E3
2714	E2
2715	F2
2716	E6
2717	B8
2718	B8
2719	B4
2720	B4
2721	F6
2722	E7
3701	A1
3702	A2
3703	A5
3704	A6
3705	A3
3706	A7
3707	A1
3708	A2
3709	A5
3710	A6
3711	B3
3712	B7
3713	B1
3714	B3
3715	B2
3716	B4
3717	B6
3718	B7
3719	C8
3720	C3
3721	C3
3722	C3
3723	C7
3724	C4
3725	C7
3726	D3
3727	D3
3728	D1
3729	D5
3730	D4
3731	D7
3732	D3
3733	D7
3734	E2
3735	E3
3736	E7
3737	E2
3738	E3
3739	E6
3740	E7
3741	F2
3742	F3
3743	B3
3744	B7
3745	B7
3746	B4
3747	F6
3748	F5
3749	F6
5704	E7
5705	F6
5706	E2
5707	F2
5708	F2
6701	B2
6702	B5
6703	C5
6704	C8
6705	C4
6706	C8
6707	D3
6708	D4
6709	D1
6710	D5
6711	D3
6712	D8
7701-1	E6
7701-2	F6
9701	E6
9702	B1
9703	C3
9704	C3
9705	D4
9706	D7
F701	A2
F702	A6
F703	A3
F704	A7
F705	A2
F706	B6
F708	B7
F710	B7
F711	B2
F712	C6
F713	C3
F714	C6
F715	C3
F716	C7
F717	C3
F718	D2
F719	D6
F720	D3
F721	D7
F722	E1
F723	E2
F724	E2
I701	A2
I702	A6
I703	A2
I704	B6
I705	B4
I707	B2
I708	B6
I709	B4
I710	B8
I711	D5
I712	E3
I713	E7
I714	E6
I715	E2
I716	F2
I717	F2
I719	A1
I720	B1
I721	A4
I722	B3
I723	C4
I724	C4
I725	C4
I726	D4
I727	E4
I728	E4
I729	F4
I731	A5
I732	A8
I733	A5
I734	B8
I735	B6
I736	C8
I737	D8
I738	D6
I739	D6
I740	D6
I741	B3

Layout LSP (Top Side)

1232	E7
1241	E7
1243	E6
1245	E5
1246	E7
1268	E5
1269	E7
1270	E5
1401	C5
1402	A6
1404	B4
1452	C6
1500	A1
1501	A1
1502	A1
1503	C2
1504	C1
1505	A1
1506	D3
1532	B2
1538	D4
1542	B3
1543	B3
1544	B3
1550	B2
1551	C2
1552	C3
1607	D6
1608	D6
1620	E4
1621	E6
1623	D4
1624	D4
1625	D4
1629	D6
1630	D6
1631	D6
1635	D6
1645	D4
1646	E4
1669	D6
1670	E5
1683	E4
1684	E6
1701	D7
1705	E7
1901	D2
1902	D2
1904	E4
1910	E3
1911	E3
2235	E6
2248	E6
2250	E6
2402	A6
2403	A7
2404	C5
2405	A6
2406	A6
2407	B4
2411	A5
2412	A5
2413	B5
2414	A5
2416	B5
2417	B5
2418	B5
2419	B5
2431	A5
2449	B7
2450	A7
2451	A7
2454	A7
2458	C6
2460	A7
2461	C6
2468	C6
2469	C6
2488	A5
2489	C6
2490	C6
2500	A1
2501	C1
2502	C1
2503	A3
2504	A3
2505	A3
2506	B2
2507	A3
2508	C1
2510	C3
2511	A4
2514	A4
2523	B2
2524	D3
2528	B3
2535	C3
2536	C3
2537	D2
2539	C3
2540	C2
2541	C2
2542	B3
2544	B2
2551	B4
2552	C4
2561	C3
2562	C3
2563	C4
2565	C3
2570	B3
2580	C2
2584	D3
2588	C3
2674	D5
2676	D5
2688	D5
2689	D4
2692	D5
2945	D2
2948	D3
2949	D3
2957	D2
2960	E2
2977	E2
2978	E2
2984	D2
2991	D4
2998	D4
3240	E6
3401	C5
3402	D5
3403	B4
3412	A5
3414	A5
3415	A5
3418	C5
3419	B7
3421	C4
3422	C5
3425	C5
3426	C5
3432	B7
3433	B6
3434	C5
3450	B7
3451	B7
3455	A7
3456	A7
3458	B6
3462	C6
3466	C7
3467	C6
3468	C6
3469	C6
3470	C6
3471	C6
3472	C6
3473	C5
3477	B6
3485	B6
3486	B7
3487	B6
3488	C5
3490	A4
3492	C5
3499	C5
3501	C1
3502	A1
3503	B1
3504	A1
3505	A1
3507	C1
3508	B2
3509	C1
3510	B2
3511	B4
3513	A4
3514	A4
3515	A4
3516	A3
3519	B3
3520	A3
3523	C2
3524	B3
3525	B3
3529	B2
3531	B2
3535	B2
3536	B2
3550	A4
3563	C3
3566	D3
3571	C4
3575	B4
3579	C4
3587	C3
3592	B2
3598	B2
3627	D6
3628	D6
3670	E6
3683	D5
3687	D6
3701	C7
3703	C7
3713	D7
3714	D7
3717	D7
3720	D7
3722	D7
3724	D7
3725	D7
3726	D7
3728	D7
3729	D7
3730	D7
3731	D7
3930	E2
3933	E3
3936	E2
3955	E3
3957	D3
3959	D3
3971	E2
5247	E5
5401	A5
5402	A5
5406	B4
5408	B5
5409	B5
5410	B5
5411	B5
5450	B6
5452	C6
5453	C7
5455	A5
5456	C6
5500	B1
5501	B1
5502	A2
5504	C2
5505	D3
5506	B1
5511	A3
5512	B4
5532	B2
5551	B4
5552	B4
5561	B3
5562	B3
5564	D2
5565	D3
5566	D4
5567	D3
5680	E5
5681	D5
5682	D5
5683	D4
5684	D4
5901	D3
5902	D2
5913	D2
5914	D2
6404	B5
6426	C5
6452	A7
6453	B6
6456	A7
6457	C6
6469	B6
6471	C5
6474	C6
6476	B6
6480	C6
6500	A3
6509	C3
6511	A4
6535	C2
6536	C3
6537	C2
6548	C2
6549	B4
6550	C3
6551	C4
6562	C3
6563	B3
6575	A3
6582	C2
6905	E3
7403	C4
7405	A5
7406	C5
7455	C6
7512	A4
7513	B4
7516	C3
7525	B2
7542	C3
7571	B4
7673	D5
7674	D5
7902	E2
7990	E4
9230	E5
9231	E5
9233	E5
9234	E5
9235	E5
9401	B4
9402	A5
9410	B5
9411	A5
9412	B5
9413	C6
9415	C6
9417	C7
9422	C6
9423	D6
9424	C5
9425	C6
9426	C6
9427	C5
9429	A5
9434	C4
9435	C6
9436	C6
9437	C5
9438	C5
9440	C5
9441	C6
9442	B5
9443	C7
9444	B5
9447	C6
9500	A1
9501	B1
9502	B1
9503	B1
9504	B1
9506	A2
9507	D3
9511	B2
9512	D3
9513	D3
9514	B3
9524	D3
9527	C4
9530	C4
9532	D4
9533	D3
9535	B3
9539	D4
9540	B3
9543	A3
9544	A3
9547	B3
9548	A4
9549	C4
9552	D3
9553	D3
9554	C4
9555	C3
9556	C3
9557	C4
9560	C4
9561	D4
9562	D4
9570	A2
9574	B2
9620	E4
9621	E4
9622	D4
9623	D5
9624	D4
9625	E6
9626	E4
9627	D5
9628	D5
9629	D4
9630	D5
9631	E4
9632	E4
9633	E6
9634	D4
9635	D5
9636	E4
9637	D4
9641	E4
9642	D4
9644	D6
9646	E5
9650	D5
9653	D6
9654	D6
9655	E4
9656	D4
9658	D6
9659	D6
9660	E6
9661	D5
9662	D5
9663	D6
9665	D6
9666	D6
9667	D4
9668	E5
9669	E5
9670	E6
9671	E6
9672	E5
9673	D4
9674	D4
9675	D5
9677	E4
9680	D4
9681	E4
9682	E4
9683	E4
9685	E4
9686	D5
9687	E5
9688	E5
9689	E6
9690	E4
9691	E5
9692	E5
9693	E5
9694	E6
9695	E6
9696	E5
9699	D6
9702	D7
9703	D7
9704	D7
9705	D7
9706	D7
9720	D7
9721	C7
9722	D7
9723	E6
9903	E3
9904	D3
9905	D4
9906	D4
9907	D2
9908	E2
9909	E3
9910	D4
9916	E4
9917	E4
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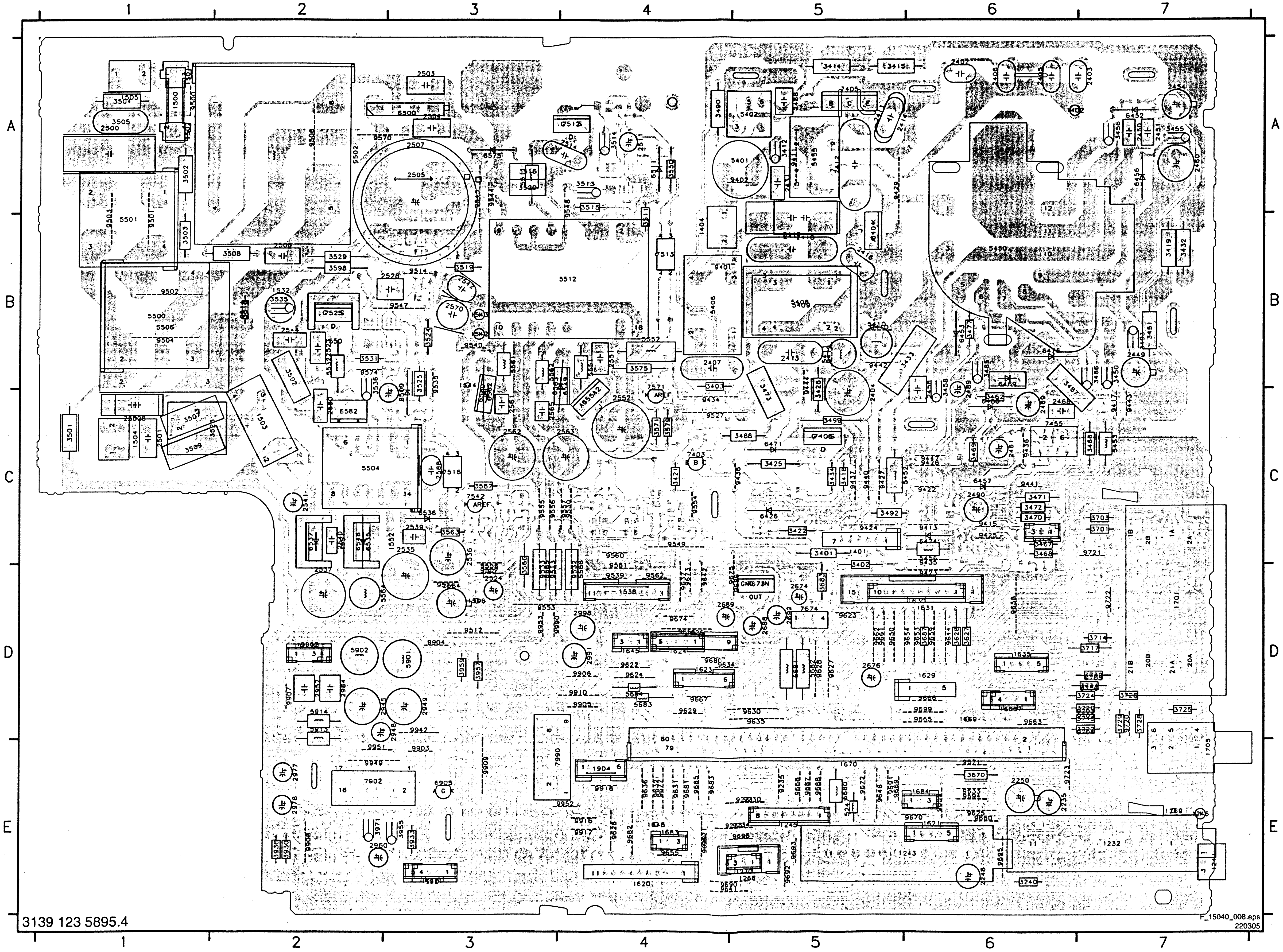
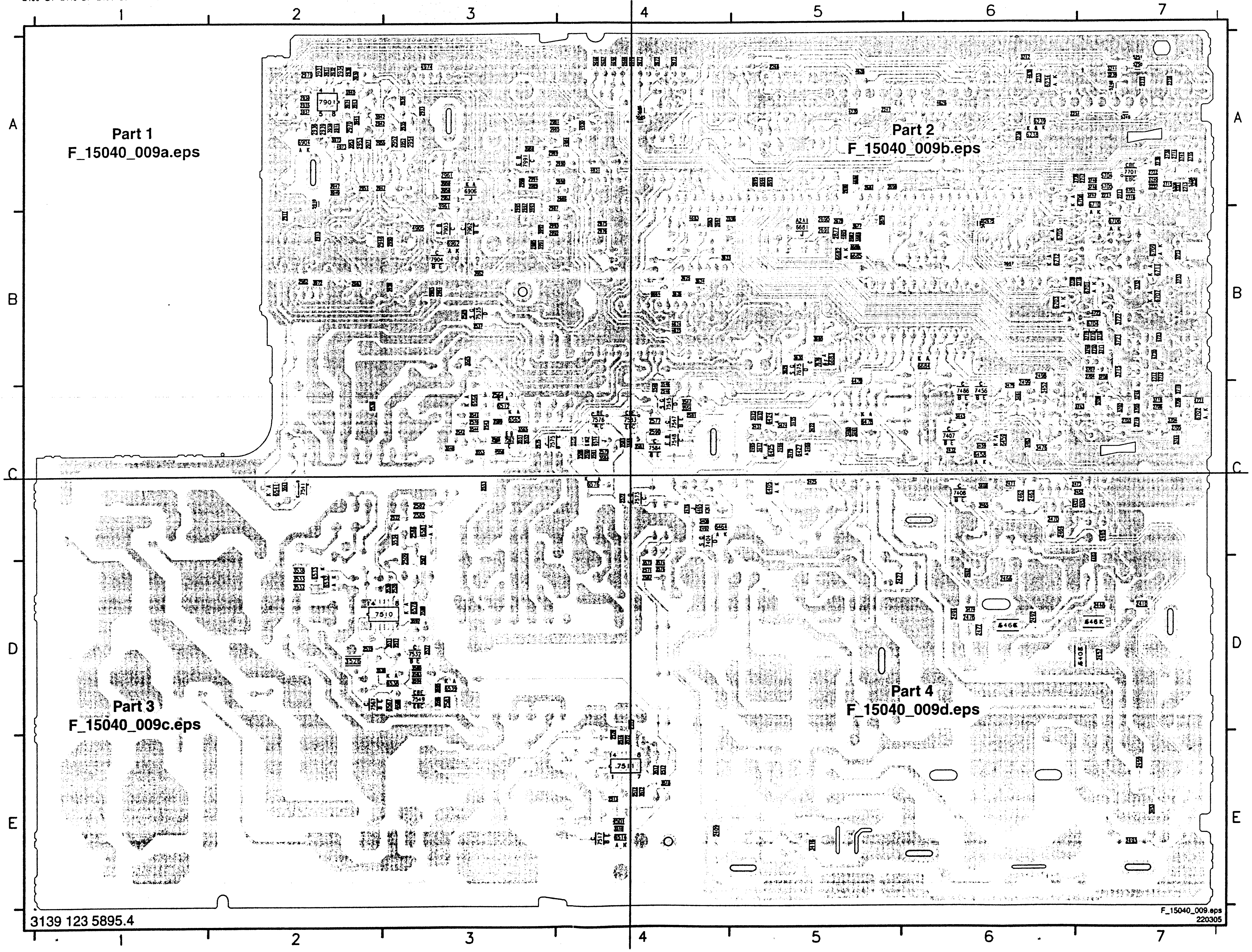
9951	E2
9952	E4
9953	D3
9990	D3

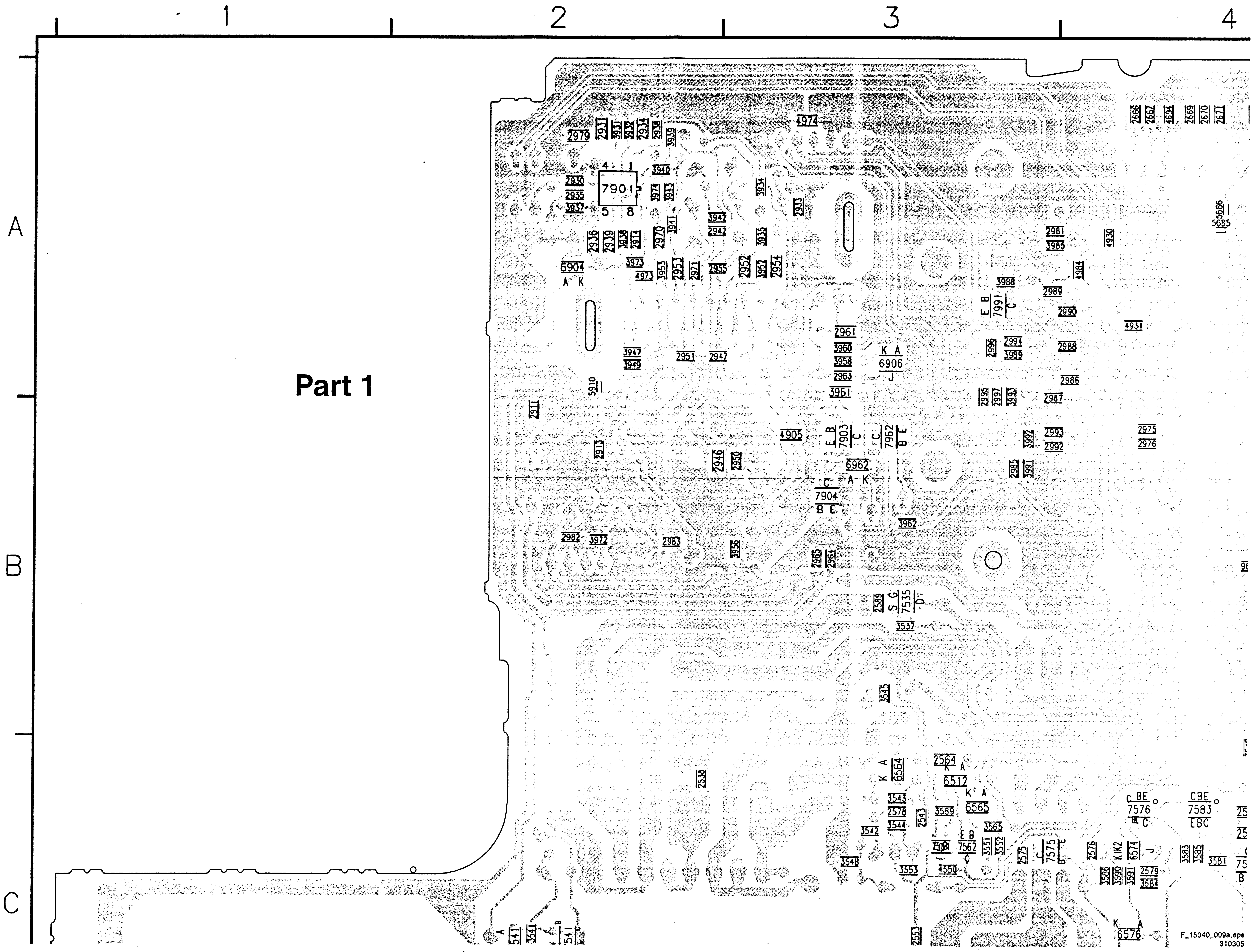


Layout LSP (Overview Bottom Side)

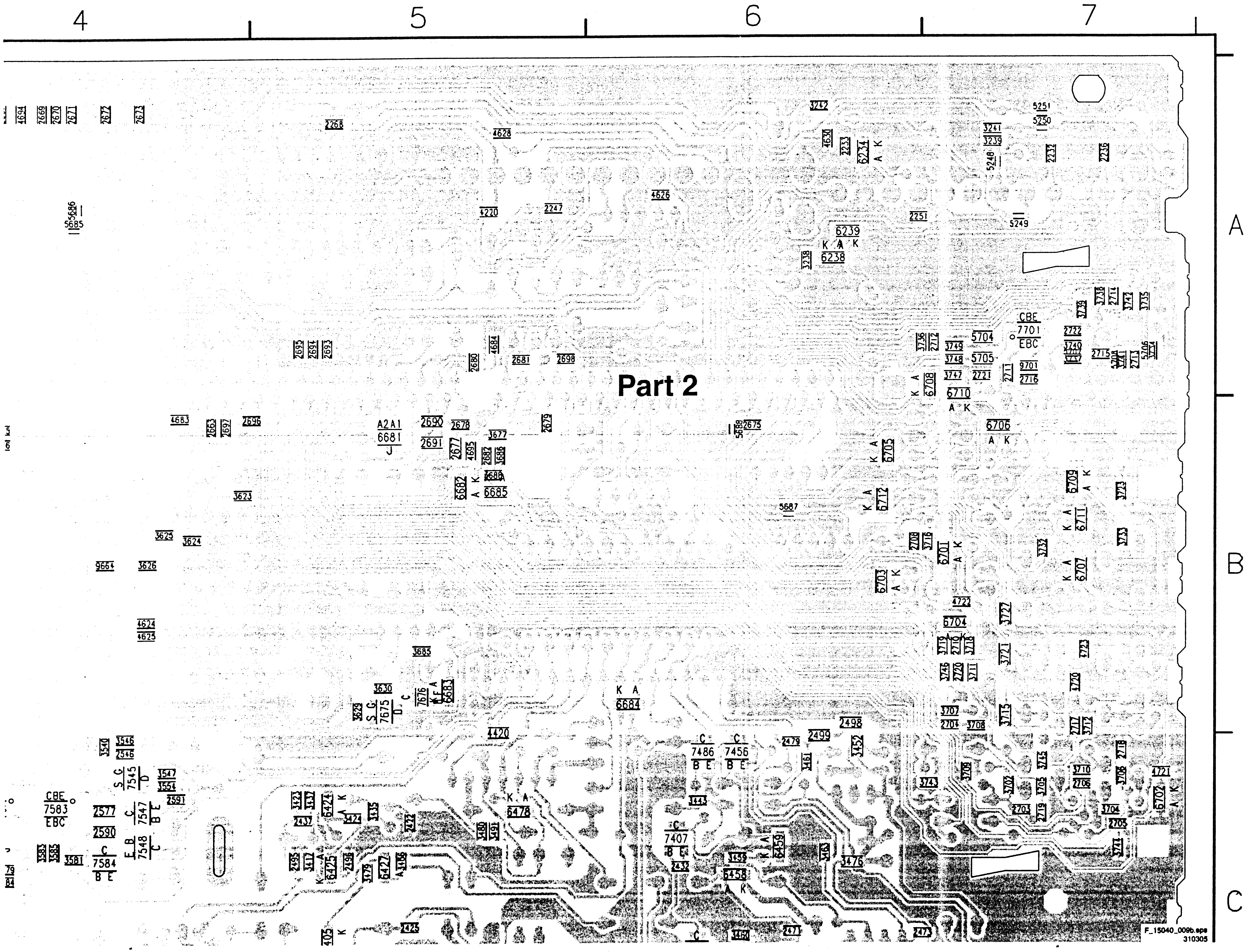
2232	A7
2233	A6
2236	A7
2247	A5
2251	A6
2268	A5
2409	E4
2410	D7
2422	C5
2425	C5
2427	D5
2432	C6
2437	C5
2448	D7
2452	C7
2453	C7
2457	D7
2459	E7
2462	C6
2463	C6
2464	C6
2465	C7
2468	D6
2470	C6
2471	C6
2473	C7
2476	D6
2477	D6
2478	C4
2479	C6
2487	D6
2492	D6
2493	E7
2494	D6
2495	C5
2496	C5
2497	C4
2498	B6
2499	C6
2509	D3
2512	E4
2513	E4
2515	D4
2516	E4
2517	E4
2519	D2
2520	D3
2521	D3
2522	C3
2526	E4
2538	C2
2543	C3
2546	C4
2553	C3
2564	C3
2571	D4
2572	C4
2575	C3
2576	C4
2577	C4
2578	C3
2579	C4
2582	C3
2583	D3
2585	C3
2586	C3
2587	D4
2589	B3
2590	C4
2591	C4
2663	B4
2666	A4
2667	A4
2669	A4
2670	A4
2671	A4
2672	A4
2673	A4
2675	B6
2677	B5
2678	B5
2679	B5
2680	A5
2681	A5
2682	B5
2690	B5
2691	B5
2693	A5
2694	A5
2695	A5
2696	B5
2697	B4
2698	A5
2703	C7
2704	B7
2705	C7
2706	C7
2708	B6
2710	B7
2711	A7
2712	A7
2713	A7
2714	A7
2715	A7
2716	A7
2717	B7
2718	C7
2719	C7
2720	B7
2721	A7
2722	A7
2911	B2
2913	B2
2914	A2
2930	A2
2931	A2
2933	A3
2934	A2
2935	A2
2936	A2
2938	A2
2939	A2
2942	A2
2946	B2
2947	A2
2950	B3
2951	A2
2952	A3
2953	A2
2954	A3
2955	A2
2961	A3
2963	A3
2964	B3
2965	B3
2970	A2
2971	A2
2975	B4
2976	B4
2979	A2
2981	A3
2982	B2
2983	B2
2985	B3
2986	A4
2987	A3
2988	A4
2989	A3
2990	A4
2992	B3
2993	B3
2994	A3
2995	A3
2996	A3
2997	A3
3238	A6
3239	A7
3241	A7
3242	A6
3408	C4
3416	E5
3417	C5
3423	C5
3424	C5
3435	C5
3436	C5
3437	C5
3443	C6
3452	C6
3453	E7
3459	C6
3460	C6
3461	C6
3463	C6
3465	C6
3474	D6
3476	C6
3479	C5
3480	C5
3491	C5
3512	E4
3517	E4
3518	E4
3521	D3
3522	E4
3526	D2
3527	D3
3528	D2
3530	D3
3532	D2
3533	D2
3534	C3
3537	B3
3538	D2
3540	C4
3541	C2
3542	C3
3543	C3
3544	C3
3545	B3
3546	C4
3547	C4
3548	C3
3549	E4
3551	C3
3552	C3
3553	C3
3554	C4
3565	C3
3567	D3
3568	D3
3573	D4
3574	D4
3576	D4
3580	D3
3581	C4
3583	C4
3584	C4
3585	C4
3586	C4
3588	D3
3589	C3
3590	C4
3591	C4
3593	D3
3594	D3
3595	D3
3596	D3
3597	D3
3623	B4
3624	B4
3625	B4
3626	B4
3629	B5
3630	B5
3677	B5
3685	B5
3686	B5
3688	B5
3702	C7
3704	C7
3705	C7
3706	C7
3707	B7
3708	B7
3709	C7
3710	C7
3711	B7
3712	B7
3715	B7
3716	B7
3718	B7
3719	B7
3721	B7
3723	B7
3727	B7
3732	B7
3733	B7
3734	A7
3735	A7
3736	A6
3737	A7
3738	A7
3739	A7
3740	A7
3741	A7
3742	A7
3743	C7
3744	C7
3745	C7
3746	B7
3747	A7
3748	A7
3749	A7
3931	A2
3932	A2
3934	A3
3935	A3
3937	A2
3938	A2
3939	A2
3940	A2
3941	A2
3942	A2
3943	A2
3947	A2
3949	A2
3952	A3
3953	A2
3956	B3
3958	A3
3960	A3
3961	A3
3962	B3
3972	B2
3973	A2
3974	A2
3985	A3
3988	A3
3989	A3
3991	B3
3992	B3
3993	A3
4220	A5
4403	D7
4420	B5
4421	C6
4501	E4
4550	C3
4624	B4
4625	B4
4626	A6
4628	A5
4630	A6
4683	B4
4684	A5
4694	A4
4695	B5
4720	B7
4721	C7
4722	B7
4723	B7
4905	B3
4930	A4
4931	A4
4973	A2
4974	A3
4984	A4
5248	A7
5249	A7
5250	A7
5251	A7
5685	A4
5686	A4
5687	B6
5688	B6
5704	A7
5705	A7
5706	A7
5707	A7
5708	A7
5910	A2
6234	A6
6238	A6
6239	A6
6403	D7
6405	C5
6424	C5
6425	C5
6427	C5
6458	C6
6459	C6
6461	D7
6464	C4
6465	C4
6466	D6
6478	C5
6512	C3
6514	E4
6532	D2
6533	D2
6538	D3
6539	D3
6541	C2
6564	C3
6565	C3
6567	D3
6574	C4
6576	C4
6578	D3
6581	C3
6681	B5
6682	B5
6683	B5
6684	B6
6685	B5
6701	B7
6702	C7
6703	B6
6704	B7
6705	B6
6706	B7
6707	B7
6708	A7
6709	B7
6710	A7
6711	B7
6712	B6
6904	A2
6906	A3
6962	B3
7404	C4
7407	C6
7408	C6
7456	C6
7486	C6
7510	D3
7511	E4
7517	E4
7532	D3
7535	B3
7541	C2
7545	C4
7547	C4
7548	C4
7549	D3
7561	C3
7562	C3
7567	D2
7573	C4
7575	C3
7576	C4
7583	C4
7584	C4
7675	B5
7676	B5
7701	A7
7901	A2
7903	B3
7904	B3
7962	B3
7991	A3
9664	B4
9701	A7



Layout LSP (Part 1 Bottom Side)

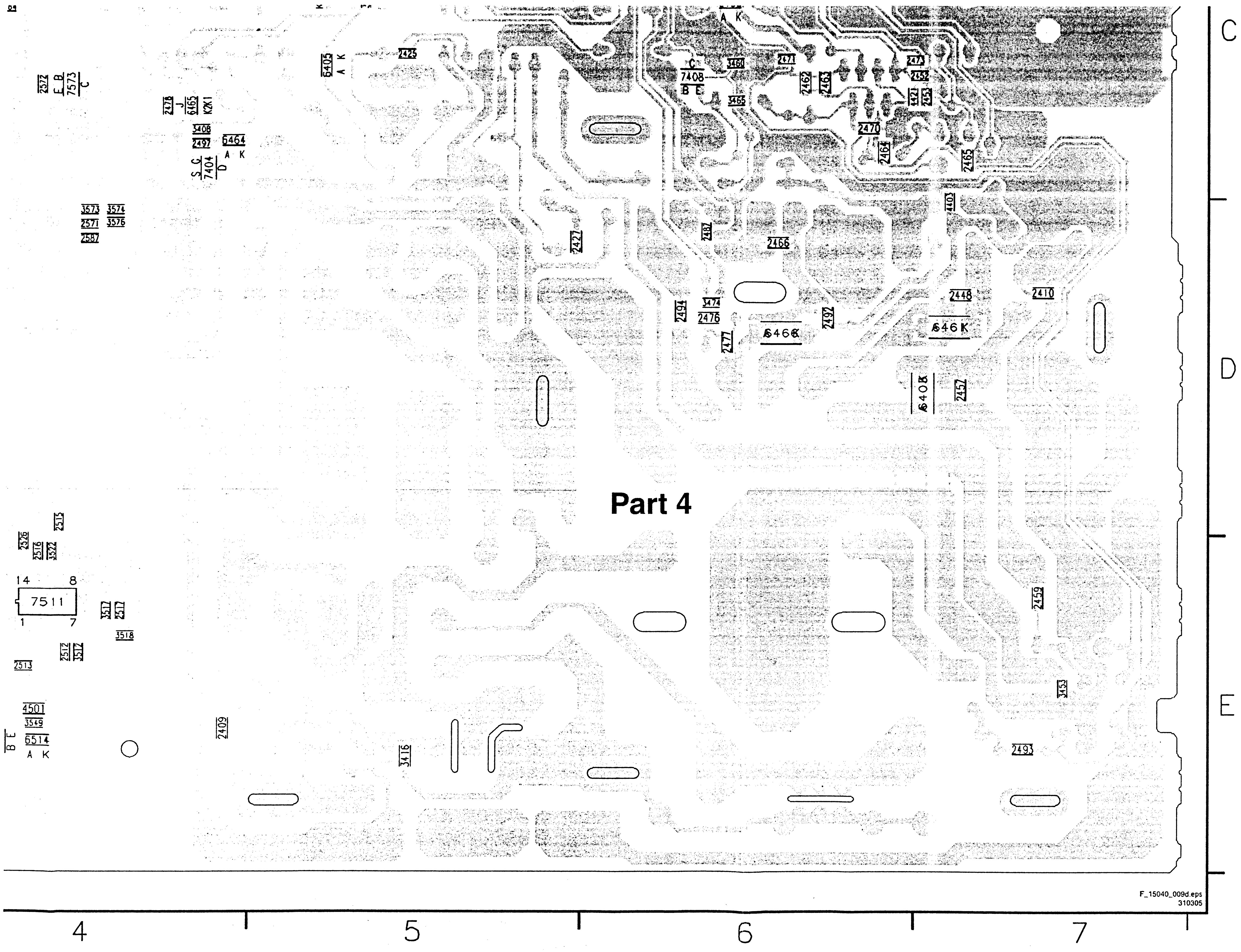

1
2
3
4
A
B
C
Part 1
2979
2931
3931
3932
2934
2938
3939
4974
7901
3940
2930
2935
3937
3974
3933
3934
2933
3942
2942
3935
2936
2939
3938
2937
2970
3941
6904
A K
3973
4973
3953
2953
2971
2955
2952
3952
2954
2961
3960
3958
2963
3961
K A
6906
J
3947
3949
2951
2947
5910
2911
2913
2946
2950
4905
E B
7903
C
C
7962
B E
6962
A K
C
7904
B E
3962
2982
3972
2983
3956
2965
2964
2589
S C
7535
D
3537
3545
2538
2666
2667
4694
2669
2670
2671
5686
5685
2981
3985
4930
3984
3988
E B
7991
C
2989
2990
4931
2996
2994
3989
2988
2986
2995
2997
3993
2987
3992
2993
2992
3995
3991
2975
2976
K A
6564
2564
K A
6512
K A
6565
3543
2578
3544
2543
3589
3542
3565
E B
7562
C
3551
3552
3548
3553
4550
2575
7575
2576
K1K2
6574
3586
3590
3591
2579
3584
C BE
7576
C
C BE
7583
E B C
3583
3585
3581
2553
K A
6576
541
3541
541
F_15040_009a.eps
310305

Layout LSP (Part 2 Bottom Side)

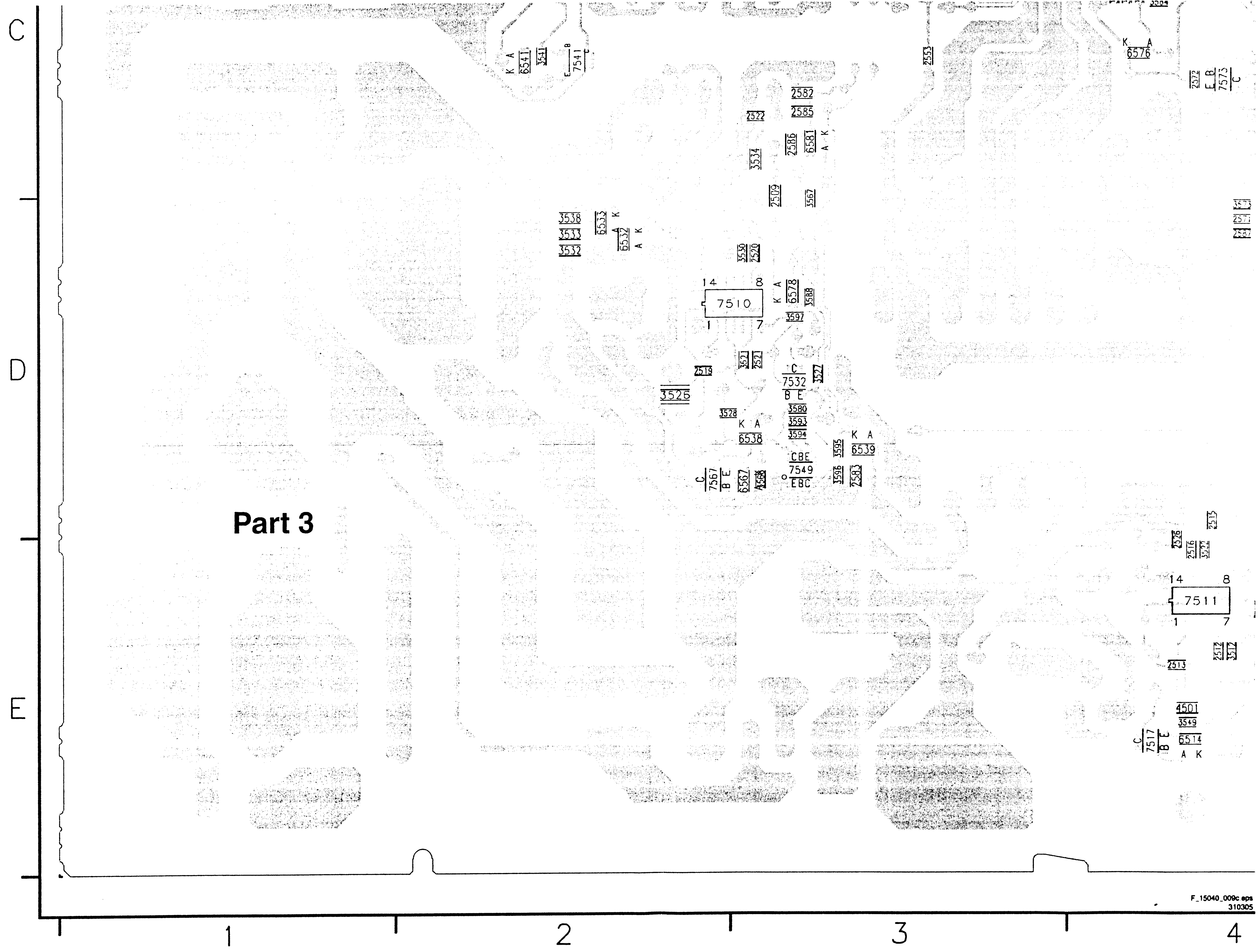


4
5
6
7
A
B
C
Part 2
F_15040_009b.eps
310305

Layout LSP (Part 4 Bottom Side)


Part 4
C
D
E
4
5
6
7
2572
7573
E B
C
2478
6465
J
K2K1
3408
2497
6464
A K
7404
S C
D
3573
3574
2571
3576
2587
6405
A K
2425
7408
C
B E
3460
A K
3465
2471
2462
2463
2473
2452
3451
2453
2470
2464
2465
2403
2422
2487
2466
2494
3474
2476
2477
6466
2492
2448
2410
6467
6408
2457
2526
2516
3522
2515
14
8
7511
1
7
3517
2517
3518
2512
3512
2513
4501
3549
6514
B E
A K
2409
3416
2459
3453
2493
F_15040_009d.eps
310305

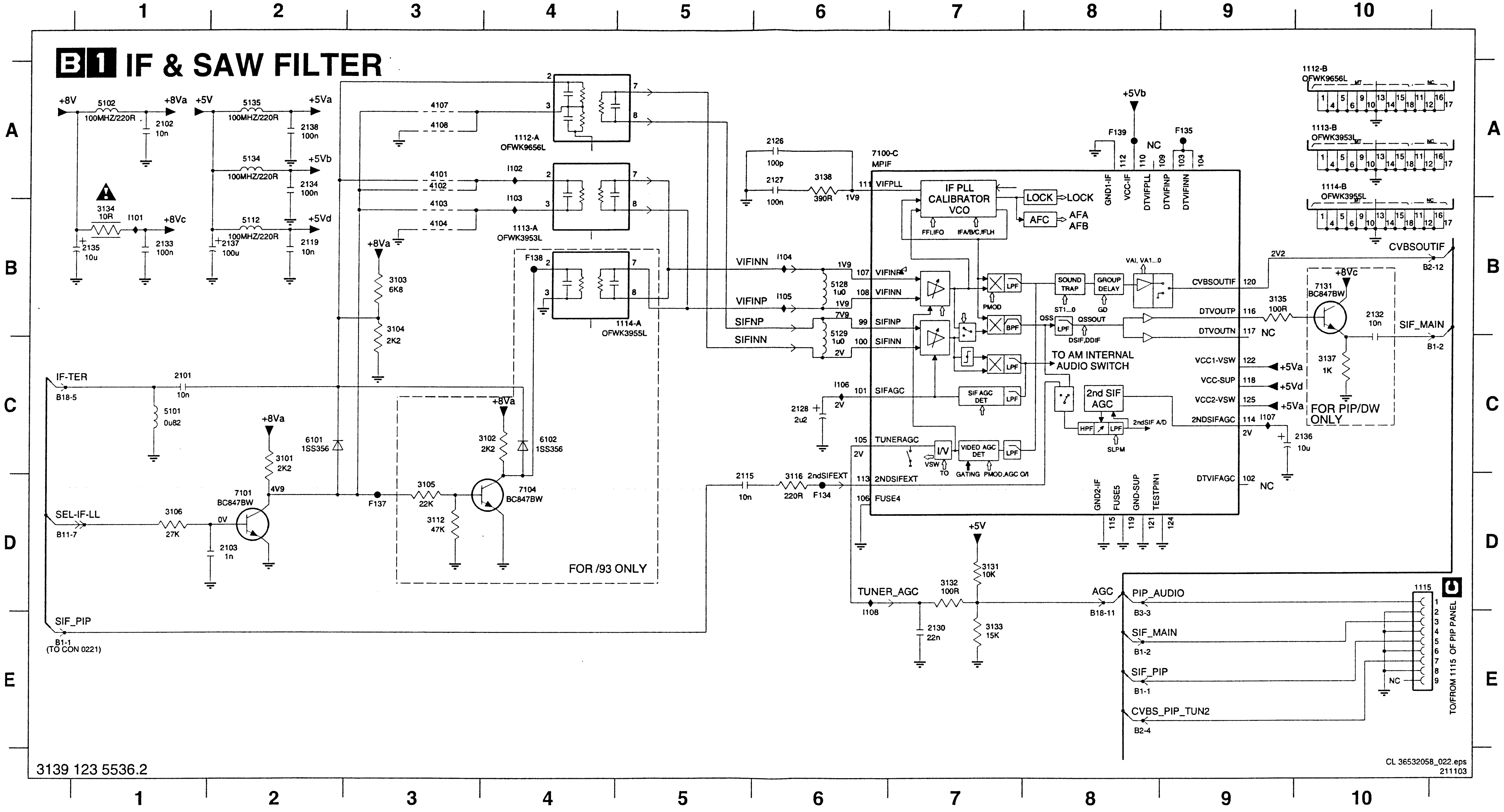
Layout LSP (Part 3 Bottom Side)


C
D
E
1
2
3
4
Part 3
6541
3541
7541
2553
6576
2572
7573
2582
2585
2522
2586
6581
3534
2509
3567
3538
3533
3532
6533
6532
3530
2520
7510
6578
3588
3597
2519
3521
2521
3526
7532
3527
3580
3593
3594
3528
6538
3595
6539
7549
3596
2583
7561
6567
2515
2528
2516
3522
7511
2512
3512
2513
4501
3549
6514
7517

F_15040_009c.eps
310305

SSB: If & SAW Filter

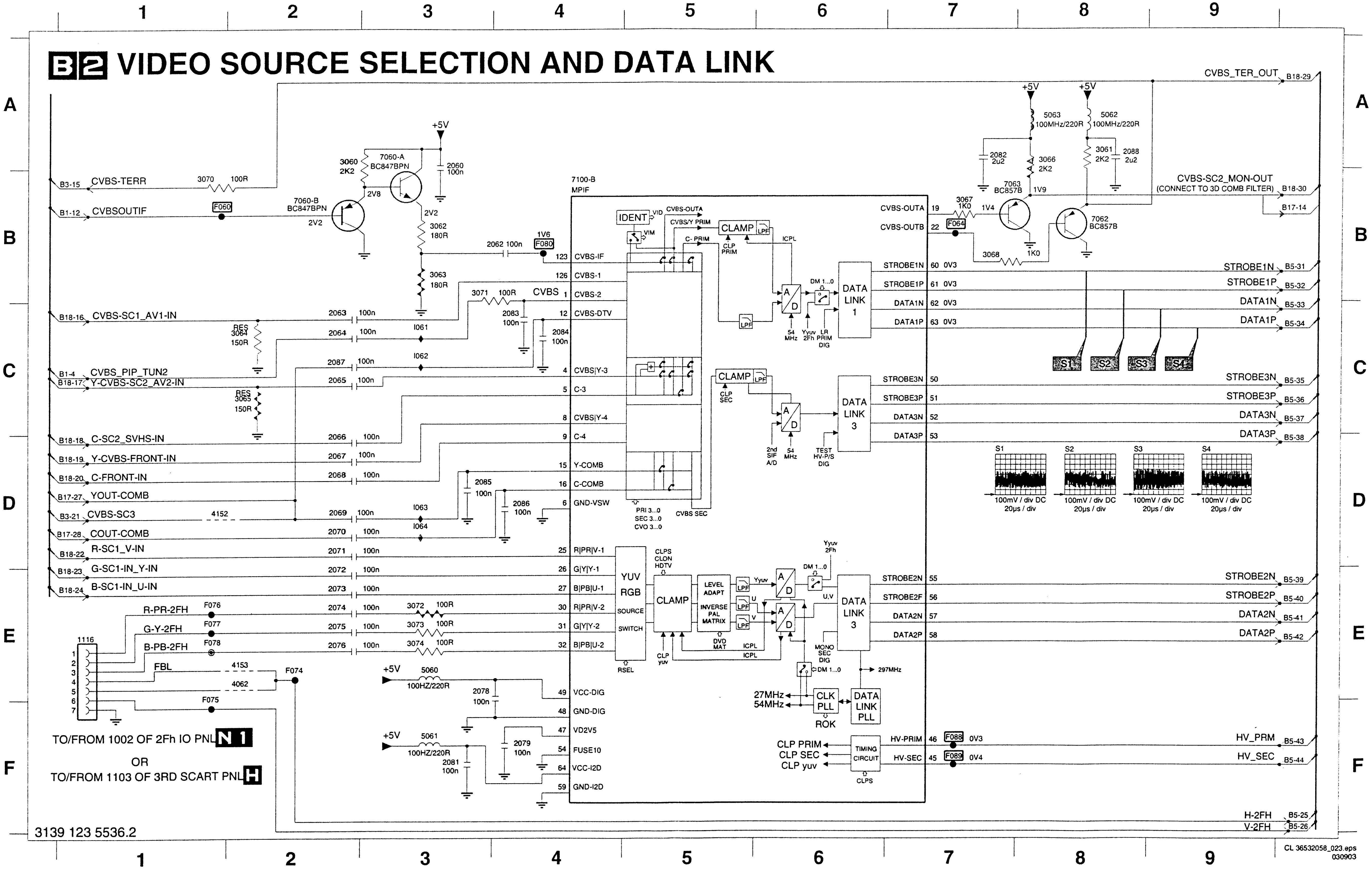
1112-A	A4
1112-B	A10
1113-A	B4
1113-B	A10
1114-A	B5
1114-B	A10
1115	D10
2101	C1
2102	A1
2103	D2
2115	D5
2119	B2
2126	A6
2127	A6
2128	C6
2130	E7
2132	B10
2133	B1
2134	A2
2135	B1
2136	C10
2137	B2
2138	A2
3101	C2
3102	C4
3103	B3
3104	B3
3105	D3
3106	D1
3112	D3
3116	D6
3131	D7
3132	D7
3133	E7
3134	B1
3135	B9
3137	C10
3138	A6
4101	A3
4102	A3
4103	B3
4104	B3
4107	A3
4108	A3
5101	C1
5102	A1
5112	B2
5128	B6
5129	B6
5134	A2
5135	A2
6101	C2
6102	C4
7100-C	A6
7101	D2
7104	D4
7131	B10
F114	E10
F115	D10
F116	E10
F132	E10
F134	D6
F135	A9
F137	D3
F138	B4
F139	A8
I101	B1
I102	A4
I103	A4
I104	B6
I105	B6
I106	C6
I107	C9
I108	E6


B1 IF & SAW FILTER
1 2 3 4 5 6 7 8 9 10
A B C D E
+8V 5102 100MHZ/220R +8Va 2102 10n
+5V 5135 100MHZ/220R +5Va 2138 100n
5134 100MHZ/220R +5Vb 2134 100n
5112 100MHZ/220R +5Vd 2137 100u 2119 10n
3134 10R I101 +8Vc 2135 10u 2133 100n
4107 4108 4101 4102 4103 4104
1112-A OFWK9656L
1113-A OFWK3953L
1114-A OFWK3955L
I102 I103 F138
3103 6K8 3104 2K2 +8Va
IF-TER B18-5 2101 10n 5101 0u82
6101 1SS356 6102 1SS356
3101 2K2 3102 2K2 +8Va
7101 BC847BW 7104 BC847BW 4V9
SEL-IF-LL B11-7 3106 27K 0V 2103 1n
3105 22K 3112 47K F137
FOR /93 ONLY
SIF_PIP B1-1 (TO CON 0221)
2126 100p 2127 100n 3138 390R 1V9
7100-C MPIF
VIFINN I104 VIFINP I105 SIFNP SIFINN
5128 1u0 5129 1u0 1V9 7V9 2V
VIFPLL VIFINP VIFINN SIFINP SIFINN SIFAGC TUNERAGC 2NDSIFEXT FUSE4
IF PLL CALIBRATOR VCO
LOCK AFC AFA AFB
FFI,IFO IFA/B/C,IFLH
SOUND TRAP GROUP DELAY ST1...0 GD PMOD
QSS QSSOUT DSIF,DDIF LPF BPF
TO AM INTERNAL AUDIO SWITCH
SIF AGC DET 2nd SIF AGC HPF LPF 2ndSIF A/D SLPM
I/V VSW TO VIDEO AGC DET GATING PMOD,AGC O/I
VAI, VA1...0
GND1-IF VCC-IF DTVIFPLL DTVIFINP DTVIFINN
112 110 109 103 104 111 107 108 99 100 101 105 113 106
F139 +5Vb NC F135
CVBSOUTIF 120 DTVOUTP 116 DTVOUTN 117 NC
VCC1-VSW 122 +5Va VCC-SUP 118 +5Vd VCC2-VSW 125 +5Va
2NDSIFAGC 114 I107 2V 2136 10u
DTVIFAGC 102 NC
GND2-IF FUSES GND-SUP TESTPIN1 115 119 121 124
I106 2128 2u2 2V
2115 10n 3116 220R 2ndSIFEXT F134
+5V 3131 10K TUNER_AGC 3132 100R I108 2130 22n 3133 15K
AGC B18-11
2V2 CVBSOUTIF B2-12
+8Vc 7131 BC847BW 3135 100R 2132 10n SIF_MAIN B1-2 3137 1K
FOR PIP/DW ONLY
1112-B OFWK9656L
1113-B OFWK3953L
1114-B OFWK3955L
1 4 5 6 9 10 13 14 15 18 11 12 16 17
PIP_AUDIO B3-3 SIF_MAIN B1-2 SIF_PIP B1-1 CVBS_PIP_TUN2 B2-4
1115 1 2 3 4 5 6 7 8 9 NC
TO/FROM 1115 OF PIP PANEL
C
3139 123 5536.2
CL 36532058_022.eps 211103

SSB: Video Source Selection & Data Link

1116	E1
2060	A3
2062	B4
2063	C2
2064	C2
2065	C2
2066	D2
2067	D2
2068	D2
2069	D2
2070	D2
2071	D2
2072	E2
2073	E2
2074	E2
2075	E2
2076	E2
2078	E3
2079	F4
2081	F3
2082	A7
2083	C4
2084	C4
2085	D3
2086	D4
2087	C2
2088	A8
3060	A2
3061	A8
3062	B3
3063	B3
3064	C2
3065	C2
3066	A8
3067	B7
3068	B7
3070	B1
3071	B3
3072	E3
3073	E3
3074	E3
4062	E2
4152	D1
4153	E2
5060	E3
5061	F3
5063	A8
7060-A	A3
7060-B	B2
7062	B8
7063	B7
7100-B	B4
F060	B1
F064	B7
F074	E2
F075	F1
F076	E1
F077	E1
F078	E1
F080	B4
F088	F7
F089	F7
I061	C3
I062	C3
I063	D3
I064	D3

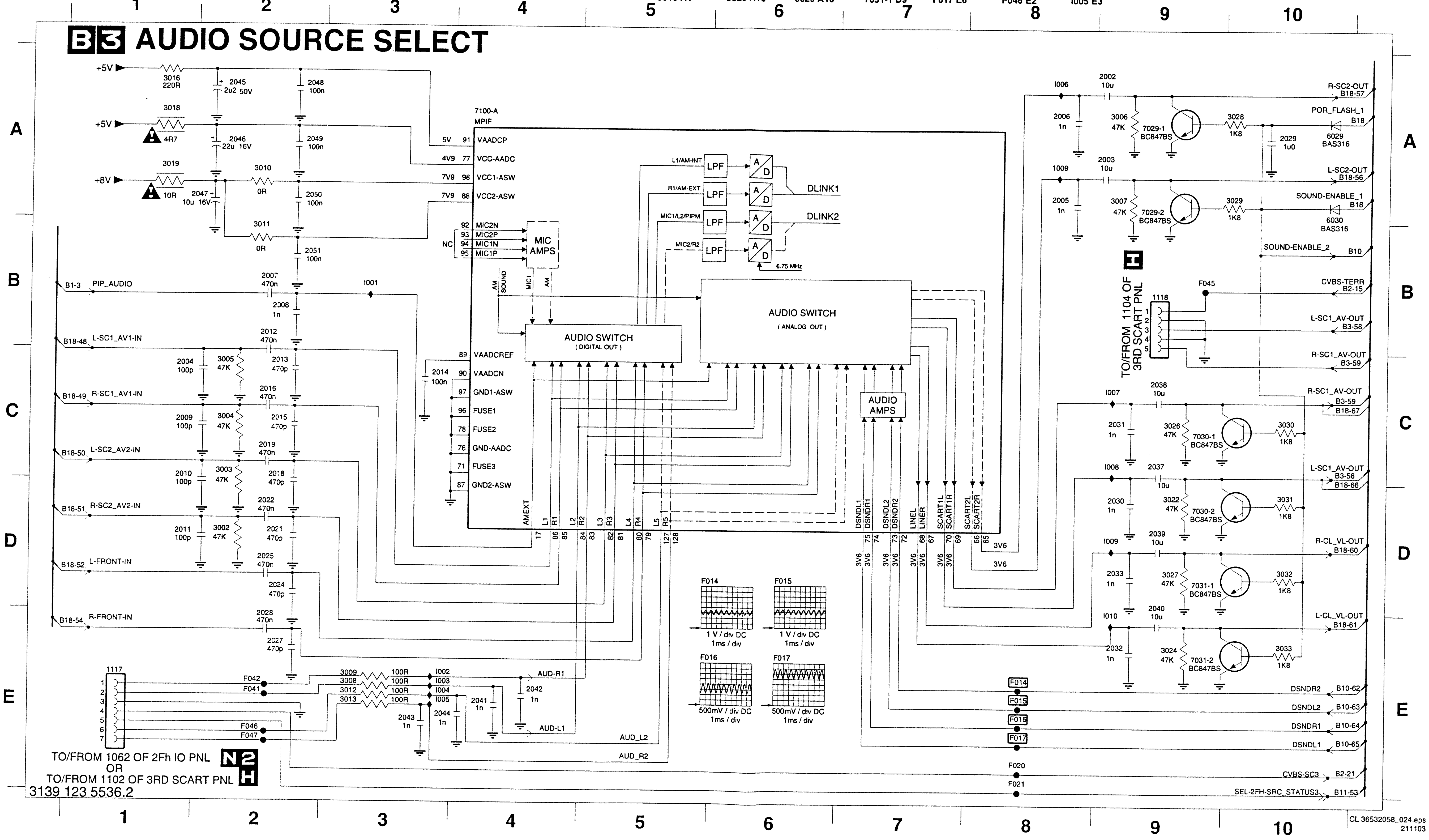
B2 VIDEO SOURCE SELECTION AND DATA LINK


1 2 3 4 5 6 7 8 9
A B C D E F
CVBS_TER_OUT B18-29
+5V
5063 100MHz/220R
5062 100MHz/220R
2082 2u2
3066 2K2
3061 2K2
2088 2u2
7063 BC857B
1V9
CVBS-SC2_MON-OUT (CONNECT TO 3D COMB FILTER) B18-30
B17-14
3067 1K0
1V4
7062 BC857B
3068 1K0
F064
+5V
3060 2K2
7060-A BC847BPN
2060 100n
2V8
7060-B BC847BPN
2V2
3062 180R
3063 180R
B3-15 CVBS-TERR
3070 100R
B1-12 CVBSOUTIF
F060
2062 100n
1V6
F080
3071 100R
CVBS
B18-16 CVBS-SC1_AV1-IN
2063 100n
2083 100n
2084 100n
RES 3064 150R
2064 100n
I061
2087 100n
I062
B1-4 CVBS_PIP_TUN2
B18-17 Y-CVBS-SC2_AV2-IN
2065 100n
RES 3065 150R
B18-18 C-SC2_SVHS-IN
2066 100n
B18-19 Y-CVBS-FRONT-IN
2067 100n
B18-20 C-FRONT-IN
2068 100n
2085 100n
2086 100n
B17-27 YOUT-COMB
B3-21 CVBS-SC3
4152
2069 100n
I063
I064
B17-28 COUT-COMB
2070 100n
B18-22 R-SC1_V-IN
2071 100n
B18-23 G-SC1-IN_Y-IN
2072 100n
B18-24 B-SC1-IN_U-IN
2073 100n
R-PR-2FH F076
2074 100n
3072 100R
G-Y-2FH F077
2075 100n
3073 100R
B-PB-2FH F078
2076 100n
3074 100R
1116
1 2 3 4 5 6 7
FBL
4153
4062
F074
F075
+5V 5060 100HZ/220R
2078 100n
+5V 5061 100HZ/220R
2081 100n
2079 100n
7100-B MPIF
123 CVBS-IF
126 CVBS-1
1 CVBS-2
12 CVBS-DTV
4 CVBS|Y-3
5 C-3
8 CVBS|Y-4
9 C-4
15 Y-COMB
16 C-COMB
6 GND-VSW
25 R|PR|V-1
26 G|Y|Y-1
27 B|PB|U-1
30 R|PR|V-2
31 G|Y|Y-2
32 B|PB|U-2
49 VCC-DIG
48 GND-DIG
47 VD2V5
54 FUSE10
64 VCC-I2D
59 GND-I2D
IDENT
VID
VIM
CVBS-OUTA
CVBS/Y PRIM
C-PRIM
CLAMP
LPF
CLP PRIM
ICPL
LPF
A D
DM 1...0
54 MHz
Yyuv 2Fh
LR PRIM DIG
DATA LINK 1
PRI 3...0
SEC 3...0
CVO 3...0
CVBS SEC
CLAMP
LPF
CLP SEC
A D
2nd SIF A/D
54 MHz
TEST HV-P/S DIG
DATA LINK 3
YUV RGB SOURCE SWITCH
RSEL
CLPS CLON HDTV
CLAMP
CLP yuv
LEVEL ADAPT
INVERSE PAL MATRIX
DVD MAT
LPF Yyuv
LPF U
LPF V
ICPL
ICPL
Yyuv 2Fh
DM 1...0
U,V
MONO SEC DIG
DM 1...0
297MHz
DATA LINK 3
27MHz
54MHz
CLK PLL
ROK
DATA LINK PLL
CLP PRIM
CLP SEC
CLP yuv
TIMING CIRCUIT
CLPS
CVBS-OUTA 19
CVBS-OUTB 22
STROBE1N 60 0V3
STROBE1P 61 0V3
DATA1N 62 0V3
DATA1P 63 0V3
STROBE3N 50
STROBE3P 51
DATA3N 52
DATA3P 53
STROBE2N 55
STROBE2F 56
DATA2N 57
DATA2P 58
HV-PRIM 46 F088 0V3
HV-SEC 45 F089 0V4
STROBE1N B5-31
STROBE1P B5-32
DATA1N B5-33
DATA1P B5-34
S1 S2 S3 S4
STROBE3N B5-35
STROBE3P B5-36
DATA3N B5-37
DATA3P B5-38
S1
S2
S3
S4
100mV / div DC 20µs / div
100mV / div DC 20µs / div
100mV / div DC 20µs / div
100mV / div DC 20µs / div
STROBE2N B5-39
STROBE2P B5-40
DATA2N B5-41
DATA2P B5-42
HV_PRM B5-43
HV_SEC B5-44
H-2FH B5-25
V-2FH B5-26
TO/FROM 1002 OF 2Fh IO PNL N1
OR
TO/FROM 1103 OF 3RD SCART PNL H
3139 123 5536.2
CL 36532058_023.eps 030903

SSB: Audio Source Select

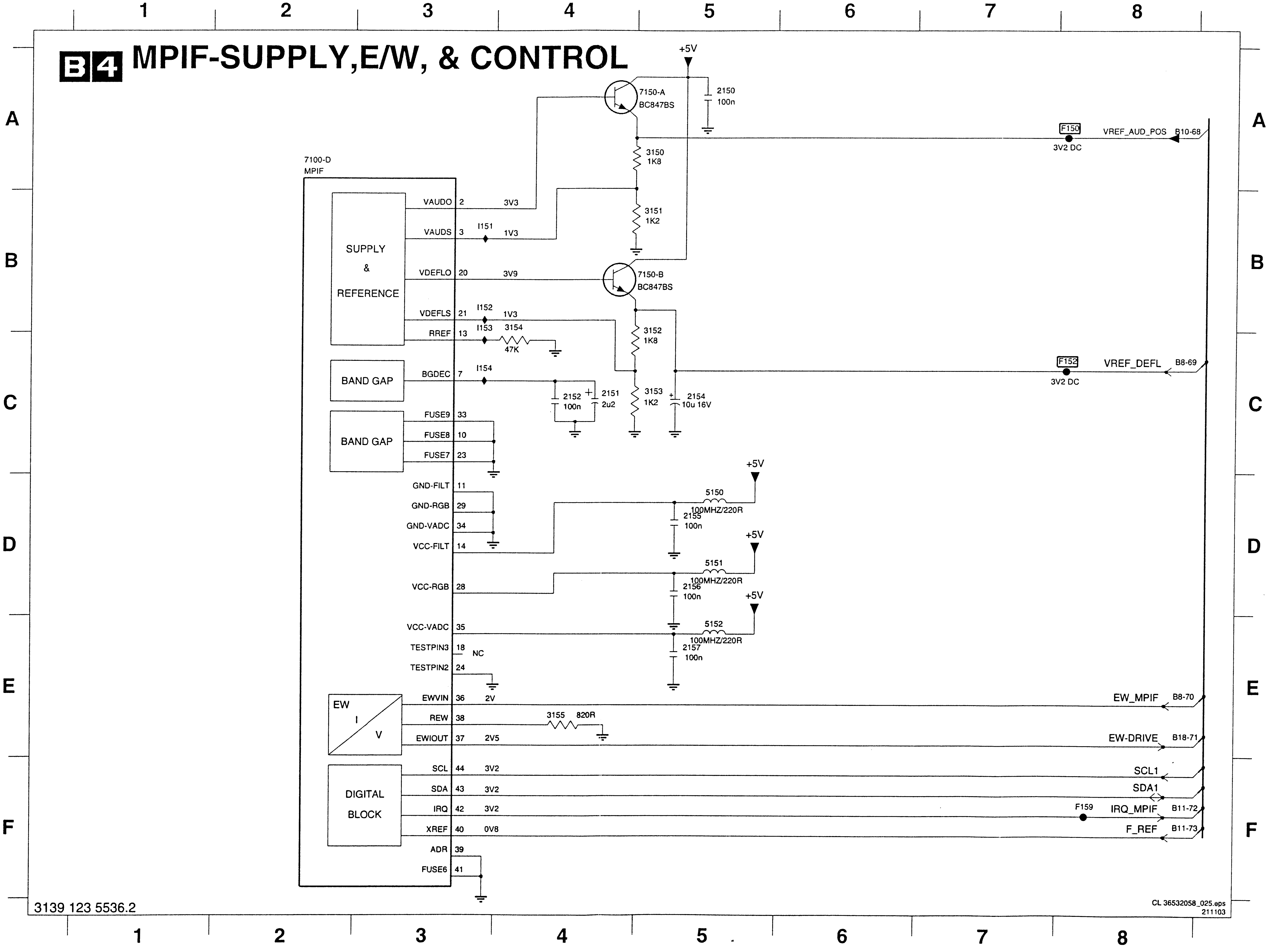
1009 A8
1117 E1
1118 B9
2002 A9
2003 A9
2004 C1
2005 A8
2006 A8
2007 B2
2008 B2
2009 C1
2010 C1
2011 D1
2012 B2
2013 C2
2014 C3
2015 C2
2016 C2
2018 C2
2019 C2
2021 D2
2022 D2
2024 D2
2025 D2
2027 E2
2028 E2
2029 A10
2030 D9
2031 C9
2032 E9
2033 D9
2037 C9
2038 C9
2039 D9
2040 D9
2041 E4
2042 E4
2043 E3
2044 E3
2045 A2
2046 A2
2047 A2
2048 A2
2049 A2
2050 A2
2051 B2
3002 D2
3003 C2
3004 C2
3005 C2
3006 A9
3007 A9
3008 E3
3009 E3
3010 A2
3011 B2
3012 E3
3013 E3
3016 A1
3018 A1
3019 A1
3022 D9
3024 E9
3026 C9
3027 D9
3028 A10
3029 A10
3030 C10
3031 D10
3032 D10
3033 E10
6029 A10
6030 A10
7029-1 A9
7029-2 A9
7030-1 C9
7030-2 D9
7031-1 D9
7031-2 E9
7100-A A4
F014 E8
F015 E8
F016 E8
F017 E8
F020 E8
F021 E8
F041 E2
F042 E2
F045 B10
F046 E2
F047 E2
I001 B3
I002 E3
I003 E3
I004 E3
I005 E3
I006 A8
I007 C9
I008 C9
I009 D9
I010 D9

B3 AUDIO SOURCE SELECT


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
+5V
3016 220R
2045 2u2 50V
2048 100n
3018 4R7
2046 22u 16V
2049 100n
+8V
3019 10R
2047 10u 16V
3010 0R
2050 100n
3011 0R
2051 100n
7100-A MPIF
5V 91 VAADCP
4V9 77 VCC-AADC
7V9 98 VCC1-ASW
7V9 88 VCC2-ASW
92 MIC2N
93 MIC2P
94 MIC1N
95 MIC1P
NC
MIC AMPS
L1/AM-INT
R1/AM-EXT
MIC1/L2/PIPM
MIC2/R2
LPF
A/D
DLINK1
DLINK2
6.75 MHz
AM SOUND
MIC1
AM
AUDIO SWITCH (DIGITAL OUT)
AUDIO SWITCH (ANALOG OUT)
AUDIO AMPS
89 VAADCREF
90 VAADCN
97 GND1-ASW
96 FUSE1
78 FUSE2
76 GND-AADC
71 FUSE3
87 GND2-ASW
2014 100n
AMEXT L1 R1 L2 R2 L3 R3 L4 R4 L5 R5
17 86 85 84 83 82 81 80 79 127 128
DSNDL1 DSNDR1 DSNDL2 DSNDR2 LINEL LINER SCART1L SCART1R SCART2L SCART2R
75 74 73 72 68 67 70 69 66 65
3V6
B1-3 PIP_AUDIO
2007 470n
2008 1n
I001
B18-48 L-SC1_AV1-IN
2012 470n
2004 100p
3005 47K
2013 470p
B18-49 R-SC1_AV1-IN
2016 470n
2009 100p
3004 47K
2015 470p
B18-50 L-SC2_AV2-IN
2019 470n
2010 100p
3003 47K
2018 470p
B18-51 R-SC2_AV2-IN
2022 470n
2011 100p
3002 47K
2021 470p
B18-52 L-FRONT-IN
2025 470n
2024 470p
B18-54 R-FRONT-IN
2028 470n
2027 470p
1117
F042
F041
F046
F047
3009 100R I002
3008 100R I003
3012 100R I004
3013 100R I005
AUD-R1
AUD-L1
AUD_L2
AUD_R2
2041 1n
2042 1n
2043 1n
2044 1n
TO/FROM 1062 OF 2Fh IO PNL
N2
OR
TO/FROM 1102 OF 3RD SCART PNL
H
3139 123 5536.2
F014
F015
F016
F017
1 V / div DC 1ms / div
500mV / div DC 1ms / div
F020
F021
CVBS-SC3 B2-21
SEL-2FH-SRC_STATUS3 B11-53
DSNDR2 B10-62
DSNDL2 B10-63
DSNDR1 B10-64
DSNDL1 B10-65
I006
2002 10u
2006 1n
3006 47K
7029-1 BC847BS
3028 1K8
2029 1u0
6029 BAS316
R-SC2-OUT B18-57
POR_FLASH_1 B18
I009
2003 10u
2005 1n
3007 47K
7029-2 BC847BS
3029 1K8
6030 BAS316
L-SC2-OUT B18-56
SOUND-ENABLE_1 B18
SOUND-ENABLE_2 B10
H
TO/FROM 1104 OF 3RD SCART PNL
1118
F045
CVBS-TERR B2-15
L-SC1_AV-OUT B3-58
R-SC1_AV-OUT B3-59
I007
2038 10u
2031 1n
3026 47K
7030-1 BC847BS
3030 1K8
R-SC1_AV-OUT B3-59 B18-67
I008
2037 10u
2030 1n
3022 47K
7030-2 BC847BS
3031 1K8
L-SC1_AV-OUT B3-58 B18-66
I009
2039 10u
2033 1n
3027 47K
7031-1 BC847BS
3032 1K8
R-CL_VL-OUT B18-60
I010
2040 10u
2032 1n
3024 47K
7031-2 BC847BS
3033 1K8
L-CL_VL-OUT B18-61

CL 36532058_024.eps
211103

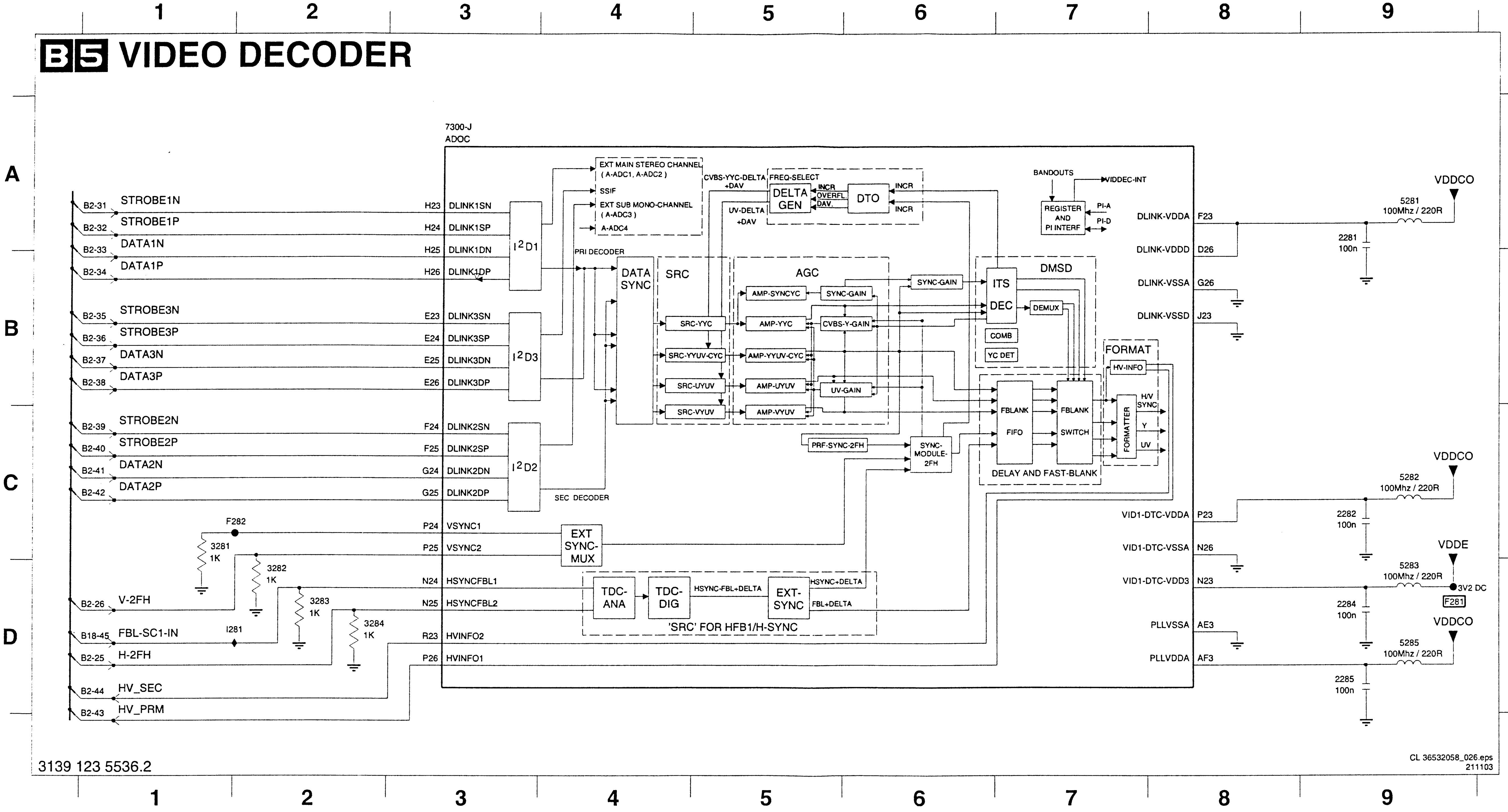
SSB: MPIF-Supply, E/W, & Control


B4 MPIF-SUPPLY,E/W, & CONTROL
1 2 3 4 5 6 7 8
A B C D E F
7100-D
MPIF
SUPPLY
&
REFERENCE
BAND GAP
BAND GAP
EW
I
V
DIGITAL
BLOCK
VAUDO 2 3V3
VAUDS 3 I151 1V3
VDEFLO 20 3V9
VDEFLS 21 I152 1V3
RREF 13 I153 3154 47K
BGDEC 7 I154
FUSE9 33
FUSE8 10
FUSE7 23
GND-FILT 11
GND-RGB 29
GND-VADC 34
VCC-FILT 14
VCC-RGB 28
VCC-VADC 35
TESTPIN3 18 NC
TESTPIN2 24
EWVIN 36 2V
REW 38
EWIOUT 37 2V5
SCL 44 3V2
SDA 43 3V2
IRQ 42 3V2
XREF 40 0V8
ADR 39
FUSE6 41
+5V
7150-A BC847BS
2150 100n
3150 1K8
3151 1K2
7150-B BC847BS
3152 1K8
3153 1K2
2152 100n
2151 2u2
2154 10u 16V
5150 100MHZ/220R
2155 100n
5151 100MHZ/220R
2156 100n
5152 100MHZ/220R
2157 100n
3155 820R
F150 3V2 DC VREF_AUD_POS B10-68
F152 3V2 DC VREF_DEFL B8-69
EW_MPIF B8-70
EW-DRIVE B18-71
SCL1
SDA1
F159 IRQ_MPIF B11-72
F_REF B11-73
3139 123 5536.2
CL 36532058_025.eps 211103

2150	A5
2151	C4
2152	C4
2154	C5
2155	D5
2156	D5
2157	E5
3150	A5
3151	B5
3152	B5
3153	C5
3154	B4
3155	E4
5150	D5
5151	D5
5152	E5
7100-D	A2
7150-A	A5
7150-B	B5
F150	A8
F152	C8
F159	F8
I151	B3
I152	B3
I153	B3
I154	C3

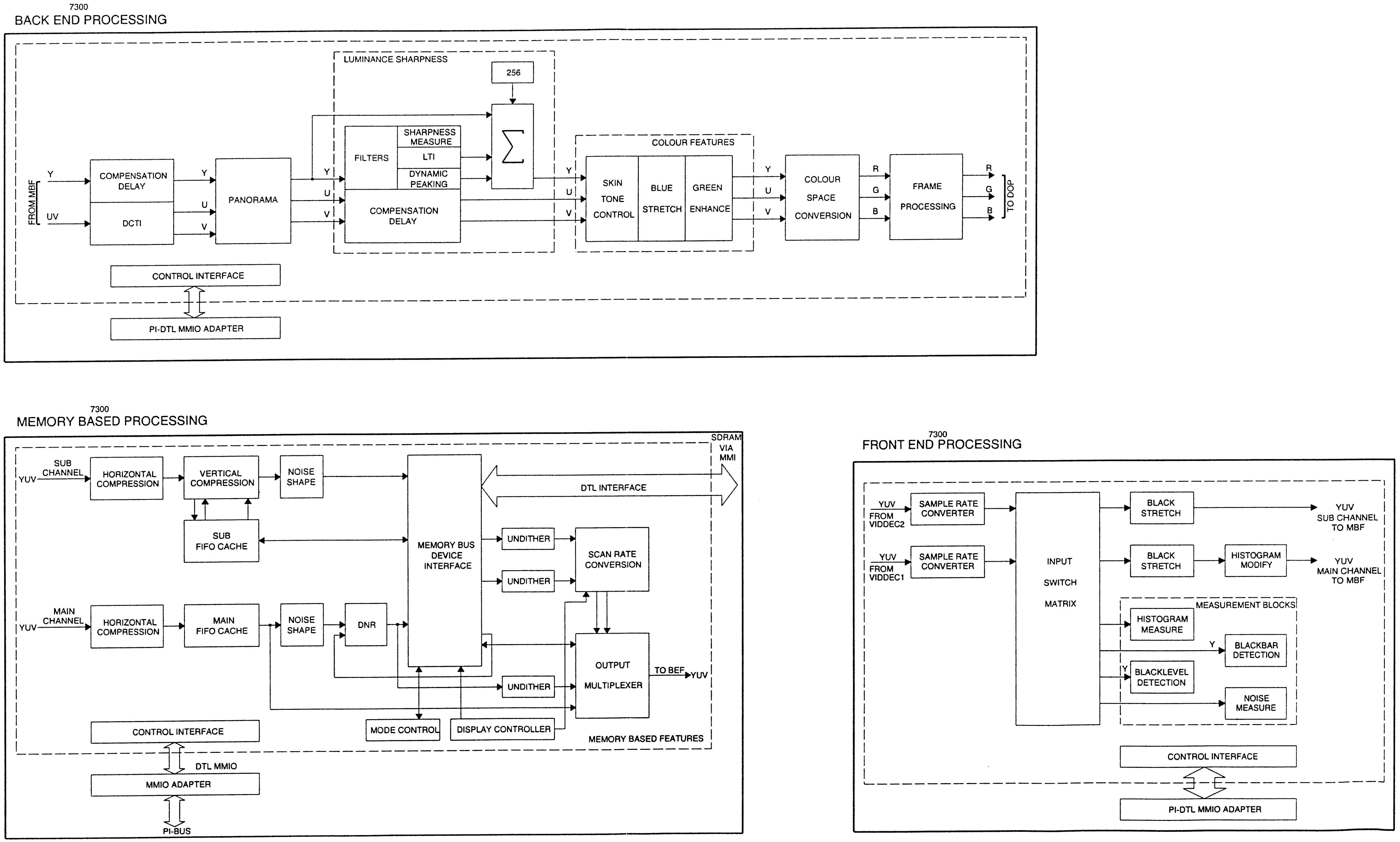
SSB: Video Decoder

2281 A9 2282 C9 2284 D9 2285 D9 3281 C1 3282 D2 3283 D2 3284 D2 5281 A9 5282 C9 5283 D9 5285 D9 7300-J A3 F281 D9 F282 C2 I281 D2


1 2 3 4 5 6 7 8 9
A B C D
B5 VIDEO DECODER
7300-J
ADOC
B2-31 STROBE1N
B2-32 STROBE1P
B2-33 DATA1N
B2-34 DATA1P
B2-35 STROBE3N
B2-36 STROBE3P
B2-37 DATA3N
B2-38 DATA3P
B2-39 STROBE2N
B2-40 STROBE2P
B2-41 DATA2N
B2-42 DATA2P
B2-26 V-2FH
B18-45 FBL-SC1-IN
B2-25 H-2FH
B2-44 HV_SEC
B2-43 HV_PRM
F282
3281 1K
3282 1K
3283 1K
3284 1K
I281
H23 DLINK1SN
H24 DLINK1SP
H25 DLINK1DN
H26 DLINK1DP
E23 DLINK3SN
E24 DLINK3SP
E25 DLINK3DN
E26 DLINK3DP
F24 DLINK2SN
F25 DLINK2SP
G24 DLINK2DN
G25 DLINK2DP
P24 VSYNC1
P25 VSYNC2
N24 HSYNCFBL1
N25 HSYNCFBL2
R23 HVINFO2
P26 HVINFO1
I2D1
I2D3
I2D2
PRI DECODER
SEC DECODER
EXT MAIN STEREO CHANNEL (A-ADC1, A-ADC2)
SSIF
EXT SUB MONO-CHANNEL (A-ADC3)
A-ADC4
CVBS-YYC-DELTA +DAV
UV-DELTA +DAV
FREQ-SELECT
DELTA GEN
INCR
OVERFL.
DAV
DTO
INCR
INCR
DATA SYNC
SRC
SRC-YYC
SRC-YYUV-CYC
SRC-UYUV
SRC-VYUV
AGC
AMP-SYNCYC
SYNC-GAIN
AMP-YYC
CVBS-Y-GAIN
AMP-YYUV-CYC
AMP-UYUV
UV-GAIN
AMP-VYUV
SYNC-GAIN
DMSD
ITS
DEC
DEMUX
COMB
YC DET
BANDOUTS
VIDDEC-INT
REGISTER AND PI INTERF
PI-A
PI-D
FORMAT
HV-INFO
FORMATTER
H/V SYNC
Y
UV
FBLANK
FIFO
FBLANK
SWITCH
DELAY AND FAST-BLANK
PRF-SYNC-2FH
SYNC-MODULE-2FH
EXT SYNC-MUX
TDC-ANA
TDC-DIG
HSYNC-FBL+DELTA
EXT-SYNC
HSYNC+DELTA
FBL+DELTA
'SRC' FOR HFB1/H-SYNC
DLINK-VDDA F23
DLINK-VDDD D26
DLINK-VSSA G26
DLINK-VSSD J23
VID1-DTC-VDDA P23
VID1-DTC-VSSA N26
VID1-DTC-VDD3 N23
PLLVSSA AE3
PLLVDDA AF3
VDDCO
5281 100Mhz / 220R
2281 100n
VDDCO
5282 100Mhz / 220R
2282 100n
VDDE
5283 100Mhz / 220R
3V2 DC
F281
2284 100n
VDDCO
5285 100Mhz / 220R
2285 100n
3139 123 5536.2
CL 36532058_026.eps 211103

SSB: Feature Box

B6 FEATURE BOX

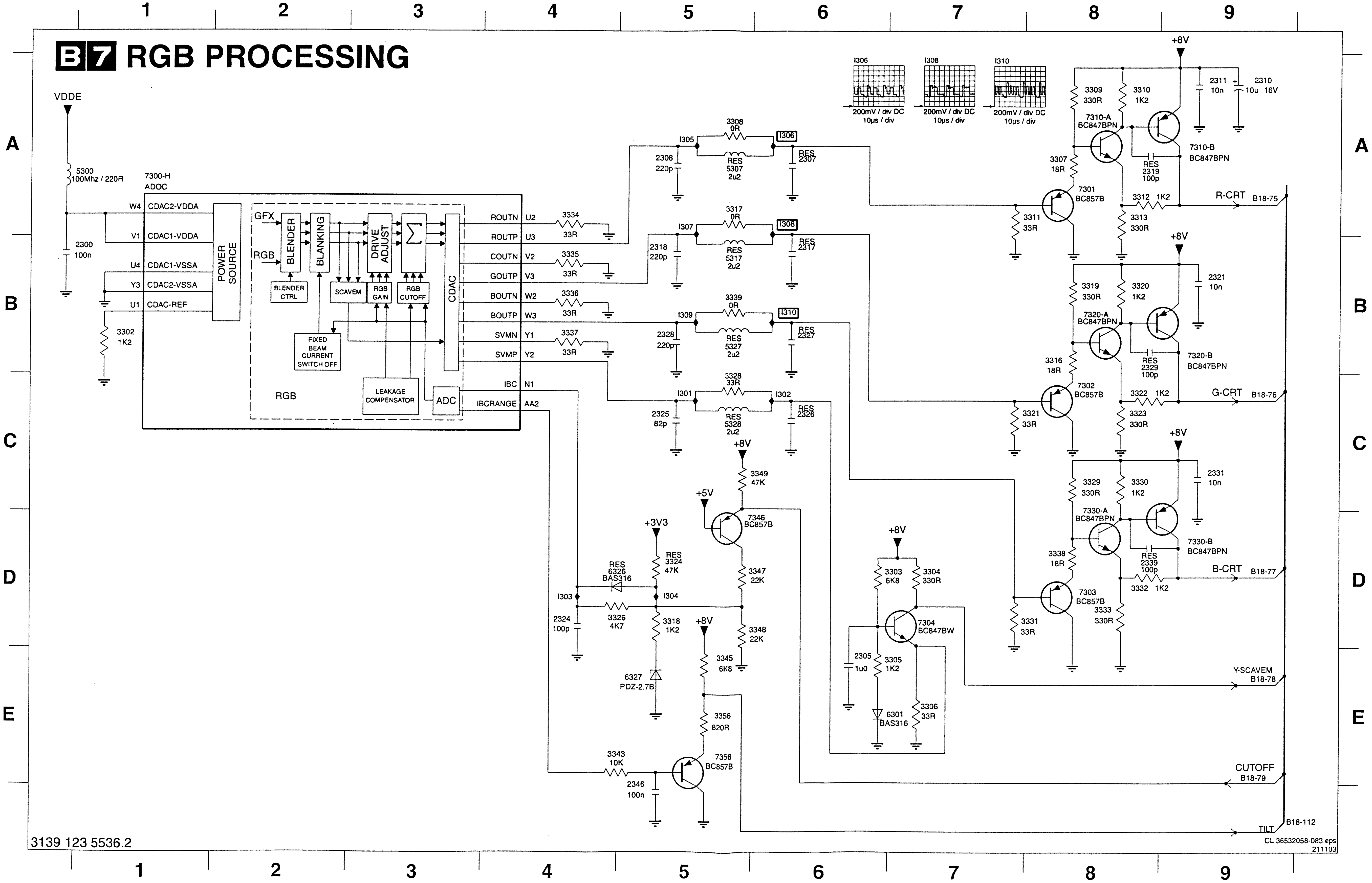

7300
BACK END PROCESSING
LUMINANCE SHARPNESS
256
Σ
FILTERS
SHARPNESS MEASURE
LTI
DYNAMIC PEAKING
COMPENSATION DELAY
FROM MBF
Y
UV
COMPENSATION DELAY
DCTI
Y
U
V
PANORAMA
COLOUR FEATURES
SKIN TONE CONTROL
BLUE STRETCH
GREEN ENHANCE
COLOUR SPACE CONVERSION
R
G
B
FRAME PROCESSING
TO DOP
CONTROL INTERFACE
PI-DTL MMIO ADAPTER
7300
MEMORY BASED PROCESSING
SDRAM VIA MMI
SUB CHANNEL
YUV
HORIZONTAL COMPRESSION
VERTICAL COMPRESSION
NOISE SHAPE
SUB FIFO CACHE
MEMORY BUS DEVICE INTERFACE
DTL INTERFACE
UNDITHER
UNDITHER
SCAN RATE CONVERSION
MAIN CHANNEL
YUV
HORIZONTAL COMPRESSION
MAIN FIFO CACHE
NOISE SHAPE
DNR
OUTPUT MULTIPLEXER
UNDITHER
TO BEF
YUV
MODE CONTROL
DISPLAY CONTROLLER
MEMORY BASED FEATURES
CONTROL INTERFACE
DTL MMIO
MMIO ADAPTER
PI-BUS
7300
FRONT END PROCESSING
YUV
FROM VIDDEC2
SAMPLE RATE CONVERTER
YUV
FROM VIDDEC1
SAMPLE RATE CONVERTER
INPUT SWITCH MATRIX
BLACK STRETCH
YUV SUB CHANNEL TO MBF
BLACK STRETCH
HISTOGRAM MODIFY
YUV MAIN CHANNEL TO MBF
MEASUREMENT BLOCKS
HISTOGRAM MEASURE
Y
BLACKBAR DETECTION
Y
BLACKLEVEL DETECTION
NOISE MEASURE
CONTROL INTERFACE
PI-DTL MMIO ADAPTER

CL 36532058_027.eps
020903

3139 123 5536.2

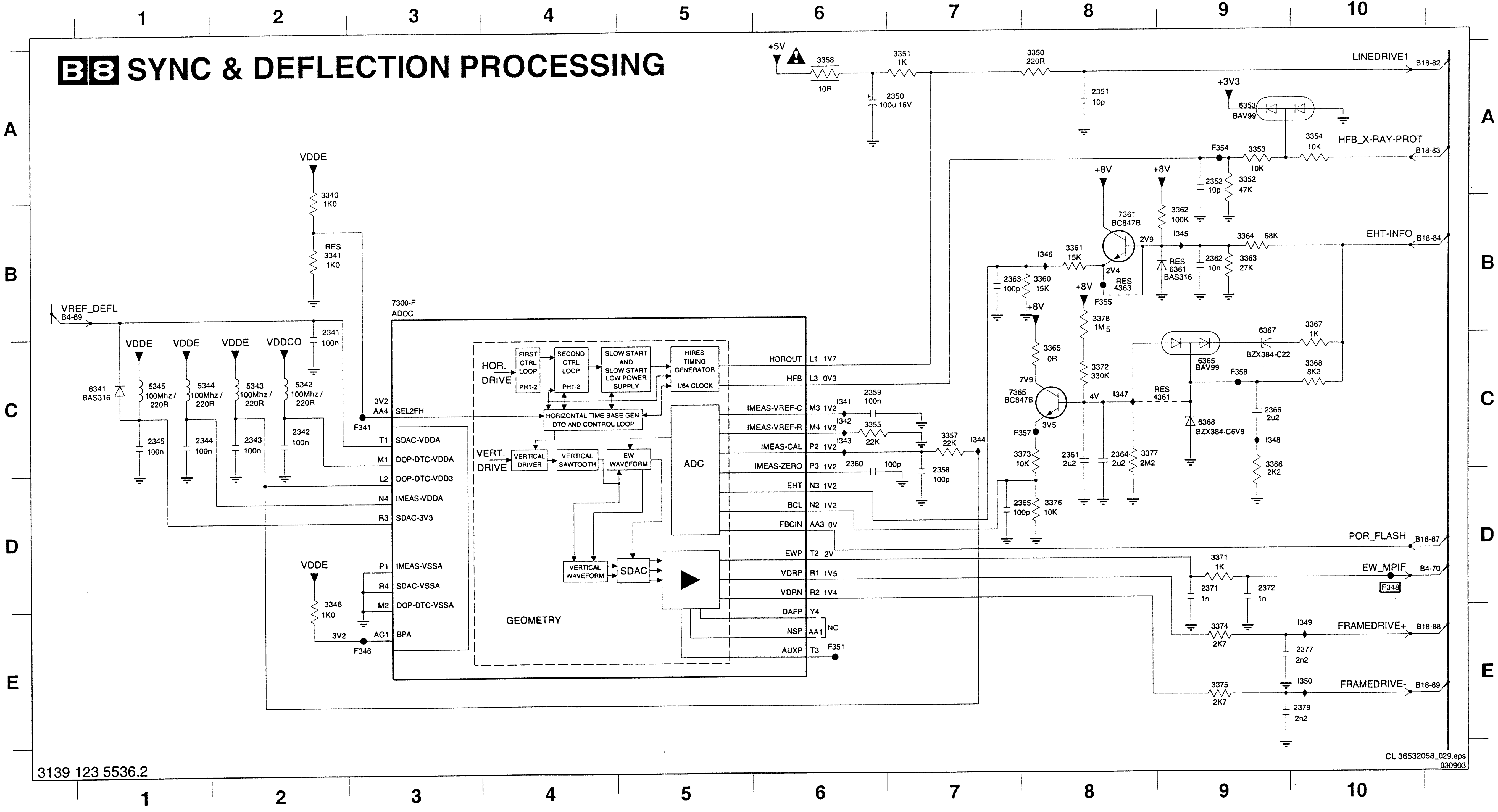
SSB: RGB Processing

2300 B1
2305 E6
2307 A6
2308 A5
2310 A9
2311 A9
2317 B6
2318 B5
2319 A8
2321 B9
2324 D4
2325 C5
2326 C6
2327 B6
2328 B5
2329 B8
2331 C9
2339 D8
2346 E5
3302 B1
3303 D7
3304 D7
3305 E7
3306 E7
3307 A8
3308 A5
3309 A8
3310 A8
3311 A8
3312 A8
3313 A8
3316 B8
3317 A5
3318 D5
3319 B8
3320 B8
3321 C8
3322 C8
3323 C8
3324 D5
3326 D4
3328 C5
3329 C8
3330 C8
3331 D8
3332 D8
3333 D8
3334 A4
3335 B4
3336 B4
3337 B4
3338 D8
3339 B5
3343 E4
3345 E5
3347 D6
3348 D6
3349 C6
3356 E5
5300 A1
5307 A5
5317 B5
5327 B5
5328 C5
6301 E7
6326 D4
6327 E5
7300-H A1
7301 A8
7302 C8
7303 D8
7304 D7
7310-A A8
7310-B A9
7320-A B8
7320-B B9
7330-A D8
7330-B D9
7346 D5
7356 E5
I301 C5
I302 C6
I303 D4
I304 D5
I305 A5
I306 A6
I307 A5
I308 A6
I309 B5
I310 B6


B7 RGB PROCESSING
1 2 3 4 5 6 7 8 9
A B C D E
VDDE
5300 100Mhz / 220R
2300 100n
3302 1K2
7300-H ADOC
W4 CDAC2-VDDA
V1 CDAC1-VDDA
U4 CDAC1-VSSA
Y3 CDAC2-VSSA
U1 CDAC-REF
POWER SOURCE
GFX
RGB
BLENDER
BLANKING
DRIVE ADJUST
Σ
CDAC
BLENDER CTRL
SCAVEM
RGB GAIN
RGB CUTOFF
FIXED BEAM CURRENT SWITCH OFF
LEAKAGE COMPENSATOR
ADC
RGB
ROUTN U2
ROUTP U3
COUTN V2
GOUTP V3
BOUTN W2
BOUTP W3
SVMN Y1
SVMP Y2
IBC N1
IBCRANGE AA2
3334 33R
3335 33R
3336 33R
3337 33R
I305
3308 0R
I306
2308 220p
RES 5307 2u2
RES 2307
I307
3317 0R
I308
2318 220p
RES 5317 2u2
RES 2317
I309
3339 0R
I310
2328 220p
RES 5327 2u2
RES 2327
I301
3328 33R
I302
2325 82p
RES 5328 2u2
RES 2326
I306 I308 I310
200mV / div DC 10µs / div
+8V
3309 330R
3310 1K2
2311 10n
2310 10u 16V
7310-A BC847BPN
7310-B BC847BPN
3307 18R
RES 2319 100p
7301 BC857B
3311 33R
3312 1K2
3313 330R
R-CRT B18-75
3319 330R
3320 1K2
2321 10n
7320-A BC847BPN
7320-B BC847BPN
3316 18R
RES 2329 100p
7302 BC857B
3321 33R
3322 1K2
3323 330R
G-CRT B18-76
3329 330R
3330 1K2
2331 10n
7330-A BC847BPN
7330-B BC847BPN
3338 18R
RES 2339 100p
7303 BC857B
3331 33R
3332 1K2
3333 330R
B-CRT B18-77
+5V
3349 47K
7346 BC857B
3347 22K
3348 22K
+3V3
RES 3324 47K
RES 6326 BAS316
I303
I304
3326 4K7
2324 100p
3318 1K2
6327 PDZ-2.7B
3345 6K8
3356 820R
7356 BC857B
3343 10K
2346 100n
3303 6K8
3304 330R
7304 BC847BW
2305 1u0
3305 1K2
6301 BAS316
3306 33R
Y-SCAVEM B18-78
CUTOFF B18-79
TILT B18-112
3139 123 5536.2
CL 36532058-083.eps 211103

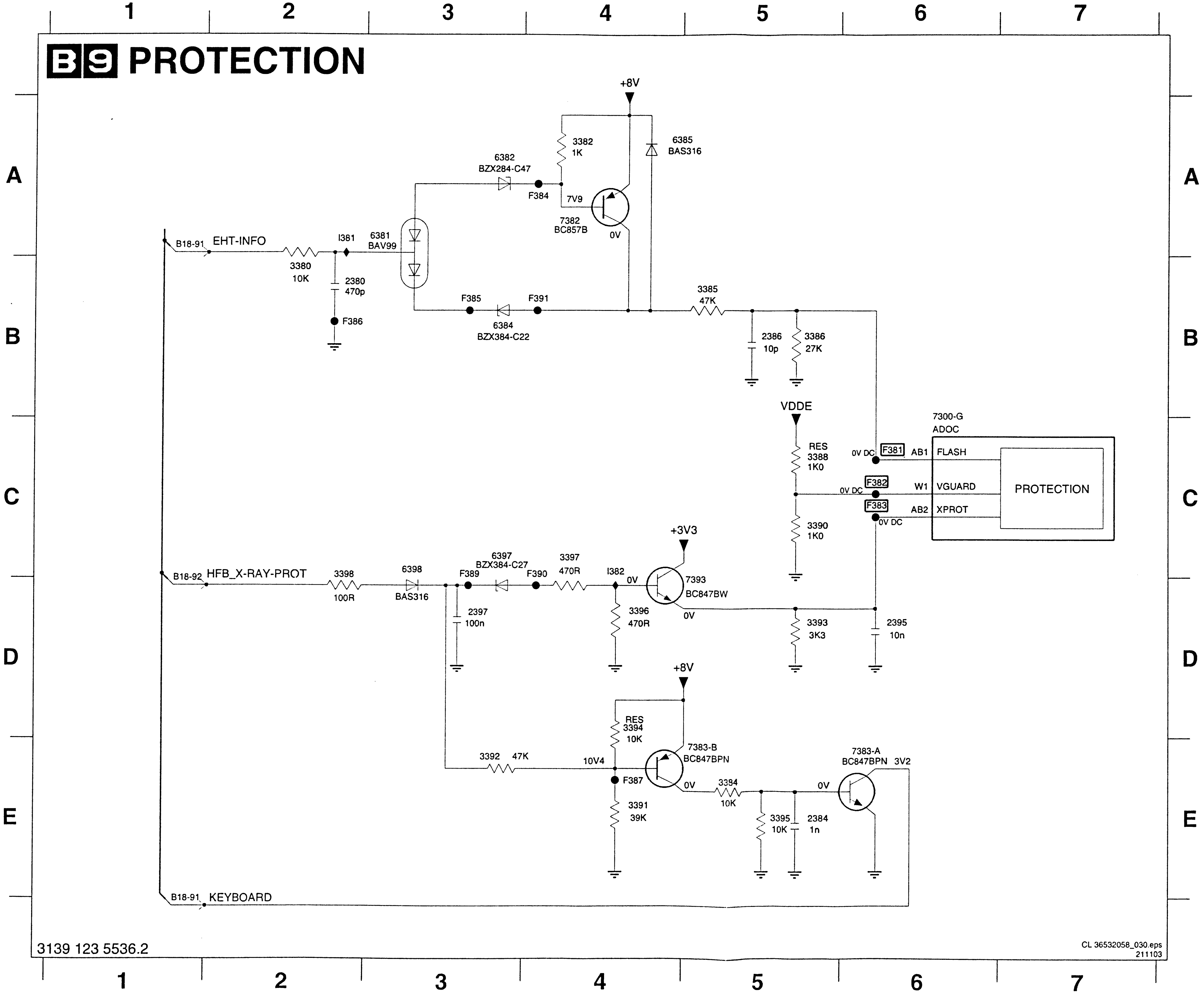
SSB: Sync & Deflection Processing

Part	Location
2341	B2
2342	C2
2343	C2
2344	C1
2345	C1
2350	A7
2351	A8
2352	A9
2358	D7
2359	C6
2360	C6
2361	C8
2362	B9
2363	B7
2364	C8
2365	D8
2366	C9
2371	D9
2372	D9
2377	E10
2379	E10
3340	A2
3341	B2
3346	D2
3350	A8
3351	A7
3352	A9
3353	A9
3354	A10
3355	C6
3357	C7
3358	A6
3360	B8
3361	B8
3362	B9
3363	B9
3364	B9
3365	C8
3366	C9
3367	B10
3368	C10
3371	D9
3372	C8
3373	C8
3374	E9
3375	E9
3376	D8
3377	C8
3378	B8
4361	C9
4363	B8
5342	C2
5343	C2
5344	C1
5345	C1
6341	C1
6353	A9
6361	B9
6365	C9
6367	C9
6368	C9
7300-F	B3
7361	B8
7365	C8
F341	C3
F346	E3
F348	D10
F351	E6
F354	A9
F355	B8
F357	C8
F358	C9
I341	C6
I342	C6
I343	C6
I344	C7
I345	B9
I346	B8
I347	C8
I348	C9
I349	E10
I350	E10


B8 SYNC & DEFLECTION PROCESSING
1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
VDDE
3340
1K0
RES
3341
1K0
VREF_DEFL
B4-69
2341
100n
VDDE
VDDE
VDDE
VDDCO
6341
BAS316
5345
100Mhz / 220R
5344
100Mhz / 220R
5343
100Mhz / 220R
5342
100Mhz / 220R
2345
100n
2344
100n
2343
100n
2342
100n
7300-F
ADOC
3V2
AA4
SEL2FH
F341
T1
SDAC-VDDA
M1
DOP-DTC-VDDA
L2
DOP-DTC-VDD3
N4
IMEAS-VDDA
R3
SDAC-3V3
VDDE
3346
1K0
P1
IMEAS-VSSA
R4
SDAC-VSSA
M2
DOP-DTC-VSSA
3V2
AC1
BPA
F346
HOR.
DRIVE
FIRST CTRL LOOP
PH1-2
SECOND CTRL LOOP
PH1-2
SLOW START AND SLOW START LOW POWER SUPPLY
HIRES TIMING GENERATOR
1/64 CLOCK
HORIZONTAL TIME BASE GEN. DTO AND CONTROL LOOP
VERT.
DRIVE
VERTICAL DRIVER
VERTICAL SAWTOOTH
EW WAVEFORM
ADC
VERTICAL WAVEFORM
SDAC
GEOMETRY
HDROUT
L1 1V7
HFB
L3 0V3
IMEAS-VREF-C
M3 1V2
IMEAS-VREF-R
M4 1V2
IMEAS-CAL
P2 1V2
IMEAS-ZERO
P3 1V2
EHT
N3 1V2
BCL
N2 1V2
FBCIN
AA3 0V
EWP
T2 2V
VDRP
R1 1V5
VDRN
R2 1V4
DAFP
Y4
NSP
AA1
NC
AUXP
T3
F351
I341
I342
I343
2359
100n
3355
22K
2360
100p
2358
100p
3357
22K
I344
+5V
3358
10R
3351
1K
2350
100u 16V
3350
220R
2351
10p
LINEDRIVE1
B18-82
+3V3
6353
BAV99
F354
3353
10K
3354
10K
HFB_X-RAY-PROT
B18-83
2352
10p
3352
47K
+8V
+8V
7361
BC847B
3362
100K
I345
2V9
3364
68K
EHT-INFO
B18-84
I346
3361
15K
2V4
RES
6361
BAS316
2362
10n
3363
27K
2363
100p
3360
15K
+8V
RES
4363
+8V
F355
3378
1M5
+8V
3365
0R
3372
330K
7V9
7365
BC847B
4V
I347
RES
4361
6365
BAV99
6367
BZX384-C22
3367
1K
F358
3368
8K2
F357
3V5
6368
BZX384-C6V8
2366
2u2
I348
3373
10K
2361
2u2
2364
2u2
3377
2M2
3366
2K2
2365
100p
3376
10K
POR_FLASH
B18-87
3371
1K
EW_MPIF
B4-70
F348
2371
1n
2372
1n
I349
3374
2K7
FRAMEDRIVE+
B18-88
2377
2n2
3375
2K7
I350
FRAMEDRIVE-
B18-89
2379
2n2
3139 123 5536.2
CL 36532058_029.eps
030903

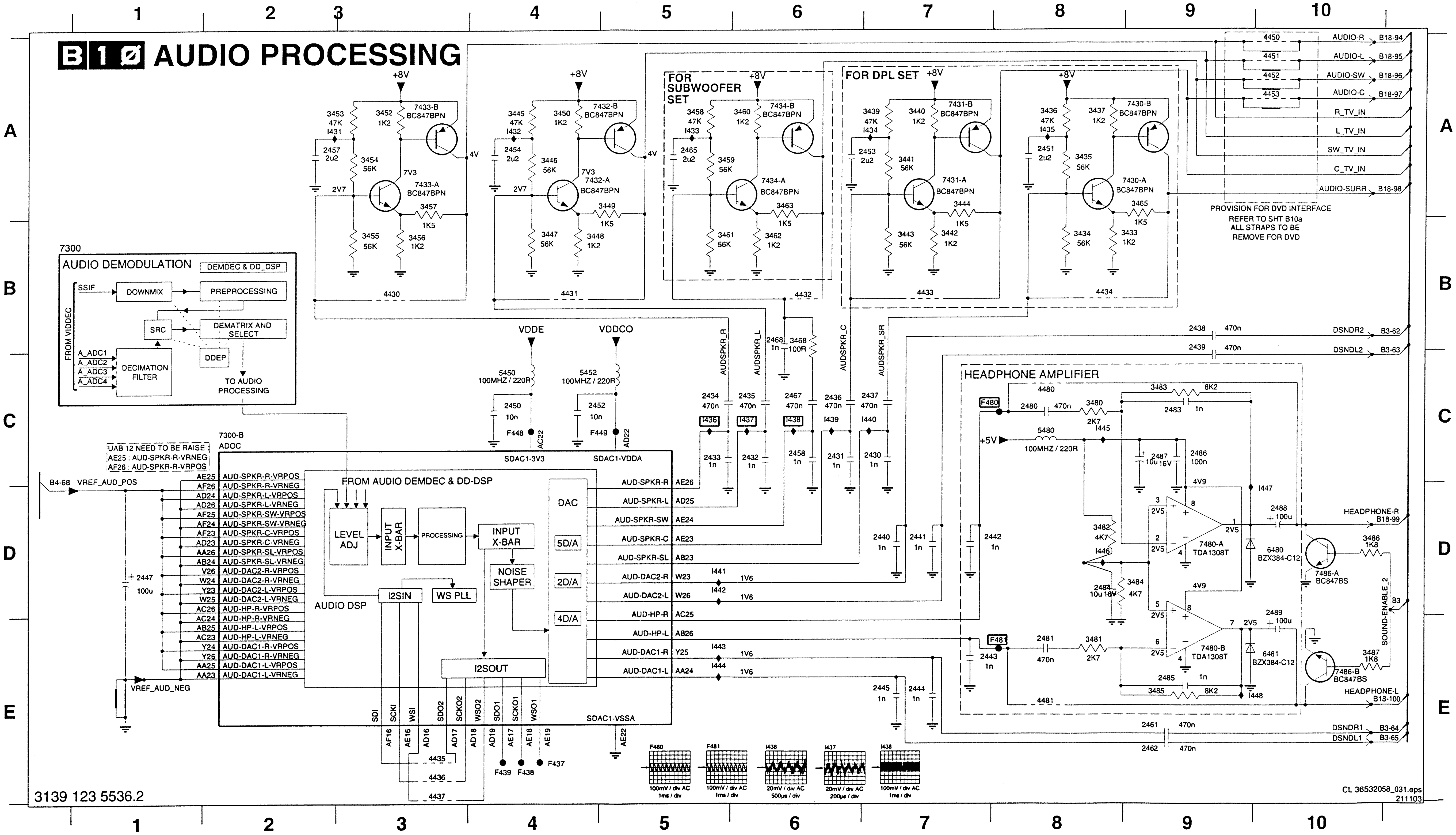
SSB: Protection

2380 B2
2386 B5
2395 E5
2395 D6
2397 D3
3380 B2
3382 A4
3384 E5
3385 B5
3386 B5
3388 C5
3390 C5
3391 E4
3392 E3
3393 D5
3394 D4
3395 E5
3396 D4
3397 C4
3398 C2
6381 A3
6382 A3
6384 B3
6385 A4
6397 C3
6398 C3
7300-G C6
7382 A4
7383-A E6
7383-B E5
7393 D5
F381 C6
F382 C6
F383 C6
F384 A4
F385 B3
F386 B2
F387 E4
F389 C3
F390 C4
F391 B4
I381 A2
I382 C4


B9 PROTECTION
1
2
3
4
5
6
7
A
B
C
D
E
+8V
3382
1K
6385
BAS316
6382
BZX284-C47
F384
7V9
7382
BC857B
0V
B18-91
EHT-INFO
I381
6381
BAV99
3380
10K
2380
470p
F386
F385
F391
6384
BZX384-C22
3385
47K
2386
10p
3386
27K
VDDE
RES
3388
1K0
7300-G
ADOC
0V DC
F381
AB1
FLASH
F382
0V DC
W1
VGUARD
PROTECTION
F383
AB2
XPROT
0V DC
3390
1K0
+3V3
B18-92
HFB_X-RAY-PROT
3398
100R
6398
BAS316
F389
6397
BZX384-C27
F390
3397
470R
I382
0V
7393
BC847BW
0V
2397
100n
3396
470R
3393
3K3
2395
10n
+8V
RES
3394
10K
7383-B
BC847BPN
3392
47K
10V4
F387
0V
3384
10K
7383-A
BC847BPN
3V2
0V
3391
39K
3395
10K
2384
1n
B18-91
KEYBOARD
3139 123 5536.2
CL 36532058_030.eps
211103

SSB: Audio Processing

2430 C7
2431 C6
2432 C6
2433 C5
2434 C5
2435 C6
2436 C6
2437 C7
2438 B9
2439 B9
2440 D7
2441 D7
2442 D8
2443 E7
2444 E7
2445 E7
2447 D1
2450 C4
2451 A8
2452 C4
2453 A7
2454 A4
2457 A2
2458 C6
2461 E9
2462 E9
2465 A5
2467 C6
2468 B6
2480 C8
2481 E8
2483 C9
2484 D8
2485 E9
2486 C9
2487 C9
2488 D10
2489 D10
3433 B9
3434 B8
3435 A8
3436 A8
3437 A8
3439 A7
3440 A7
3441 A7
3442 B7
3443 B7
3444 A7
3445 A4
3446 A4
3447 B4
3448 B4
3449 A5
3450 A4
3452 A3
3453 A2
3454 A3
3455 B3
3456 B3
3457 A3
3458 A5
3459 A5
3460 A6
3461 B5
3462 B6
3463 A6
3465 A9
3468 B6
3480 C8
3481 E8
3482 D8
3483 C9
3484 D9
3485 E9
3486 D10
3487 E10
4430 B3
4431 B4
4432 B6
4433 B7
4434 B8
4435 E3
4436 E3
4437 E3
4450 A10
4451 A10
4452 A10
4453 A10
4480 C8
4481 E8
5450 C4
5452 C4
5480 C8
6480 D10
6481 E10
7300-B C2
7430-A A8
7430-B A9
7431-A A7
7431-B A7
7432-A A4
7432-B A4
7433-A A3
7433-B A3
7434-A A6
7434-B A6
7480-A D9
7480-B E9
7486-A D10
7486-B E10
F437 E4
F438 E4
F439 E4
F448 C4
F449 C4
F480 C7
F481 E8
I431 A2
I432 A4
I433 A5
I434 A7
I435 A8
I436 C5
I437 C6
I438 C6
I439 C6
I440 C7
I441 D5
I442 D5
I443 E5
I444 E5
I445 C8
I446 D8
I447 D10
I448 E10


B10 AUDIO PROCESSING
1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
+8V
7433-B BC847BPN
7433-A BC847BPN
7432-B BC847BPN
7432-A BC847BPN
FOR SUBWOOFER SET
7434-B BC847BPN
7434-A BC847BPN
FOR DPL SET
7431-B BC847BPN
7431-A BC847BPN
7430-B BC847BPN
7430-A BC847BPN
AUDIO-R B18-94
AUDIO-L B18-95
AUDIO-SW B18-96
AUDIO-C B18-97
R_TV_IN
L_TV_IN
SW_TV_IN
C_TV_IN
AUDIO-SURR B18-98
PROVISION FOR DVD INTERFACE
REFER TO SHT B10a
ALL STRAPS TO BE
REMOVE FOR DVD
7300
AUDIO DEMODULATION
DEMDEC & DD_DSP
SSIF
DOWNMIX
PREPROCESSING
SRC
DEMATRIX AND SELECT
DDEP
FROM VIDDEC
A_ADC1
A_ADC2
A_ADC3
A_ADC4
DECIMATION FILTER
TO AUDIO PROCESSING
VDDE
VDDCO
5450 100MHZ / 220R
5452 100MHZ / 220R
AUDSPKR_R
AUDSPKR_L
AUDSPKR_C
AUDSPKR_SR
DSNDR2 B3-62
DSNDL2 B3-63
HEADPHONE AMPLIFIER
+5V
5480 100MHZ / 220R
7480-A TDA1308T
7480-B TDA1308T
6480 BZX384-C12
6481 BZX384-C12
7486-A BC847BS
7486-B BC847BS
HEADPHONE-R B18-99
HEADPHONE-L B18-100
SOUND-ENABLE_2 B3
UAB 12 NEED TO BE RAISE
AE25 : AUD-SPKR-R-VRNEG
AF26 : AUD-SPKR-R-VRPOS
7300-B
ADOC
B4-68 VREF_AUD_POS
VREF_AUD_NEG
SDAC1-3V3
SDAC1-VDDA
FROM AUDIO DEMDEC & DD-DSP
LEVEL ADJ
INPUT X-BAR
PROCESSING
INPUT X-BAR
NOISE SHAPER
DAC
5D/A
2D/A
4D/A
I2SIN
WS PLL
AUDIO DSP
I2SOUT
SDAC1-VSSA
AUD-SPKR-R
AUD-SPKR-L
AUD-SPKR-SW
AUD-SPKR-C
AUD-SPKR-SL
AUD-DAC2-R
AUD-DAC2-L
AUD-HP-R
AUD-HP-L
AUD-DAC1-R
AUD-DAC1-L
DSNDR1 B3-64
DSNDL1 B3-65
F480
F481
I436
I437
I438
3139 123 5536.2
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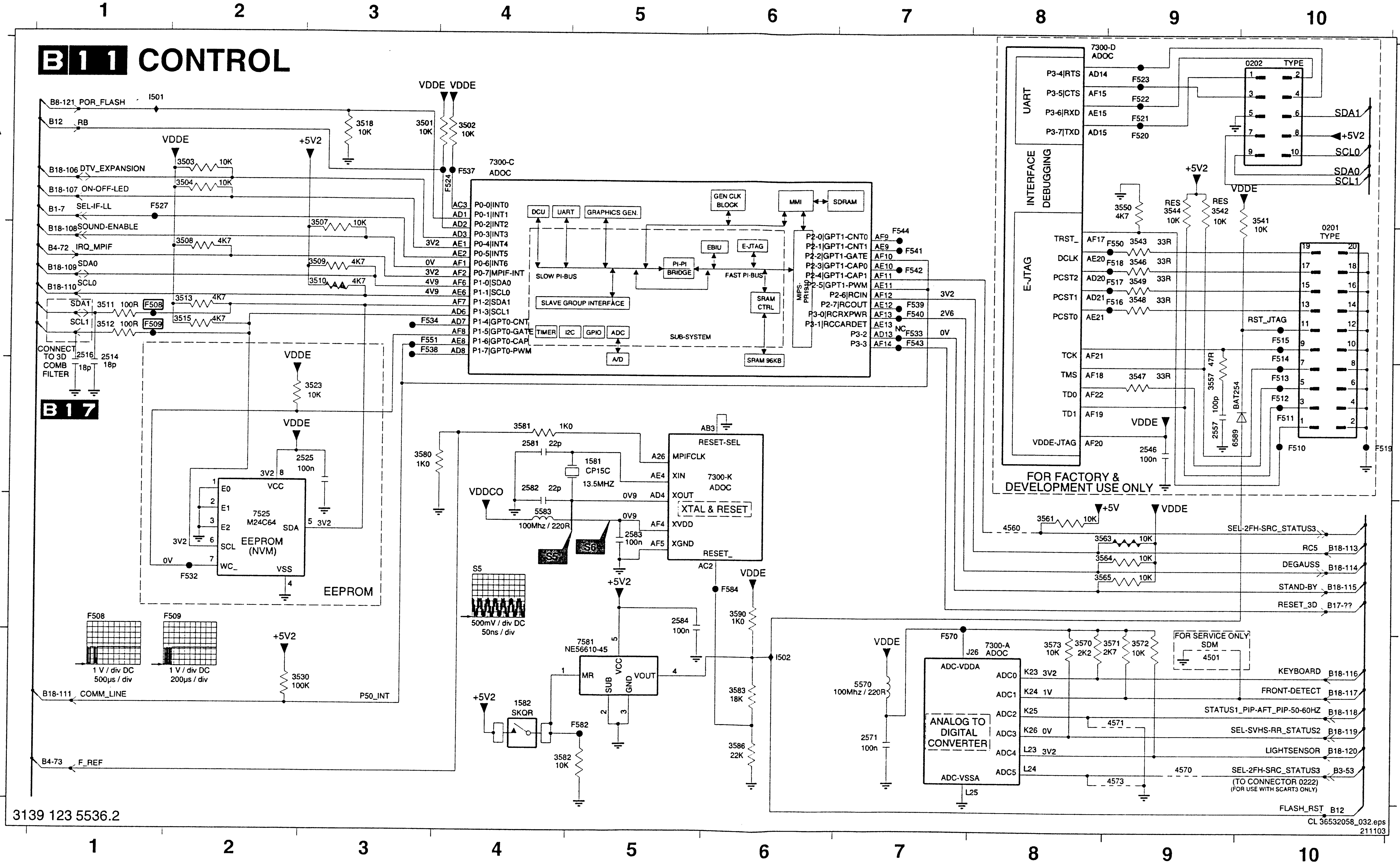
SSB: Control

0201	A10
0202	A10
1581	C5
1582	E4
2514	B1
2516	C1
2525	C3
2546	C9
2557	C9
2571	E7
2581	C4
2582	C4
2583	D5
2584	D5
3501	A3
3502	A4
3503	A2
3504	A2
3507	B3
3508	B2
3509	B3
3510	B3
3511	B1
3512	B1
3513	B2
3515	B2
3518	A3
3523	C3
3530	E3
3541	A10
3542	A9
3543	B9
3544	A9
3546	B9
3547	C9
3548	B9
3549	B9
3550	A9
3557	C9
3561	D8
3563	D8
3564	D9
3565	D8
3570	E8
3571	E9
3572	E9
3573	E8
3580	C3
3581	C4
3582	E4
3583	E6
3586	E6
3590	D6
4501	E9
4560	D8
4570	E9
4571	E9
4573	E9
5570	E7
5583	D4
6589	C10
7300-A	E8
7300-C	A4
7300-D	A8
7300-K	C6
7525	D2
7581	E5
F508	B1
F509	B1
F510	C10
F511	C10
F512	C10
F513	C10
F514	B10
F515	B10
F516	B9
F517	B9
F518	B9
F519	C10
F520	A9
F521	A9
F522	A9
F523	A9
F524	A4
F527	A1
F532	D2
F533	B7
F534	B3
F537	A4
F538	B3
F539	B7
F540	B7
F541	B7
F542	B7
F543	B7
F544	B7
F550	B9
F551	B3
F570	E7
F582	E5
F584	D6
I501	A1
I502	E6


1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
B 1 1 CONTROL
B 1 7
B8-121 POR_FLASH
I501
B12 RB
B18-106 DTV_EXPANSION
B18-107 ON-OFF-LED
B1-7 SEL-IF-LL
F527
B18-108 SOUND-ENABLE
B4-72 IRQ_MPIF
B18-109 SDA0
B18-110 SCL0
SDA1
SCL1
3511 100R
3512 100R
F508
F509
CONNECT TO 3D COMB FILTER
2516 18p
2514 18p
VDDE
+5V2
3503 10K
3504 10K
3507 10K
3508 4K7
3509 4K7
3510 4K7
3513 4K7
3515 4K7
3518 10K
3501 10K
3502 10K
F524
F537
F534
F551
F538
7300-C ADOC
P0-0|INT0
P0-1|INT1
P0-2|INT2
P0-3|INT3
P0-4|INT4
P0-5|INT5
P0-6|INT6
P0-7|MPIF-INT
P1-0|SDA0
P1-1|SCL0
P1-2|SDA1
P1-3|SCL1
P1-4|GPT0-CNT
P1-5|GPT0-GATE
P1-6|GPT0-CAP
P1-7|GPT0-PWM
DCU
UART
GRAPHICS GEN.
GEN CLK BLOCK
MMI
SDRAM
SLOW PI-BUS
PI-PI BRIDGE
FAST PI-BUS
EBIU
E-JTAG
SLAVE GROUP INTERFACE
SRAM CTRL
TIMER
I2C
GPIO
ADC
A/D
SUB-SYSTEM
SRAM 96KB
MIPS-PR1910
P2-0|GPT1-CNT0
P2-1|GPT1-CNT1
P2-2|GPT1-GATE
P2-3|GPT1-CAP0
P2-4|GPT1-CAP1
P2-5|GPT1-PWM
P2-6|RCIN
P2-7|RCOUT
P3-0|RCXPWR
P3-1|RCCARDET
P3-2
P3-3
F544
F541
F542
F539
F540
F533
F543
EEPROM
3523 10K
2525 100n
7525 M24C64
EEPROM (NVM)
E0
E1
E2
SCL
WC_
VCC
SDA
VSS
F532
3581 1K0
3580 1K0
2581 22p
2582 22p
1581 CP15C 13.5MHZ
VDDCO
5583 100Mhz / 220R
2583 100n
S5
S6
7300-K ADOC
RESET-SEL
MPIFCLK
XIN
XOUT
XTAL & RESET
XVDD
XGND
RESET_
F584
+5V2
2584 100n
7581 NE56610-45
MR
VCC
SUB
GND
VOUT
1582 SKQR
F582
3582 10K
3590 1K0
3583 18K
3586 22K
I502
F508
1 V / div DC 500µs / div
F509
1 V / div DC 200µs / div
S5
500mV / div DC 50ns / div
3530 100K
B18-111 COMM_LINE
P50_INT
B4-73 F_REF
7300-D ADOC
UART
P3-4|RTS
P3-5|CTS
P3-6|RXD
P3-7|TXD
F523
F522
F521
F520
0202 TYPE
SDA1
+5V2
SCL0
SDA0
SCL1
INTERFACE DEBUGGING
E-JTAG
TRST_
DCLK
PCST2
PCST1
PCST0
TCK
TMS
TD0
TD1
VDDE-JTAG
F550 3543 33R
F518 3546 33R
F517 3549 33R
F516 3548 33R
3547 33R
3550 4K7
RES 3544 10K
RES 3542 10K
3541 10K
0201 TYPE
RST_JTAG
F515
F514
F513
F512
F511
F510
F519
3557 47R
2557 100p
BAT254
6589
2546 100n
FOR FACTORY & DEVELOPMENT USE ONLY
4560
3561 10K
+5V
3563 10K
3564 10K
3565 10K
SEL-2FH-SRC_STATUS3
RC5 B18-113
DEGAUSS B18-114
STAND-BY B18-115
RESET_3D B17-??
5570 100Mhz / 220R
2571 100n
F570
7300-A ADOC
ADC-VDDA
ANALOG TO DIGITAL CONVERTER
ADC-VSSA
ADC0
ADC1
ADC2
ADC3
ADC4
ADC5
3573 10K
3570 2K2
3571 2K7
3572 10K
FOR SERVICE ONLY SDM
4501
KEYBOARD B18-116
FRONT-DETECT B18-117
STATUS1_PIP-AFT_PIP-50-60HZ B18-118
4571
SEL-SVHS-RR_STATUS2 B18-119
LIGHTSENSOR B18-120
4570
SEL-2FH-SRC_STATUS3 B3-53
4573
(TO CONNECTOR 0222) (FOR USE WITH SCART3 ONLY)
FLASH_RST B12

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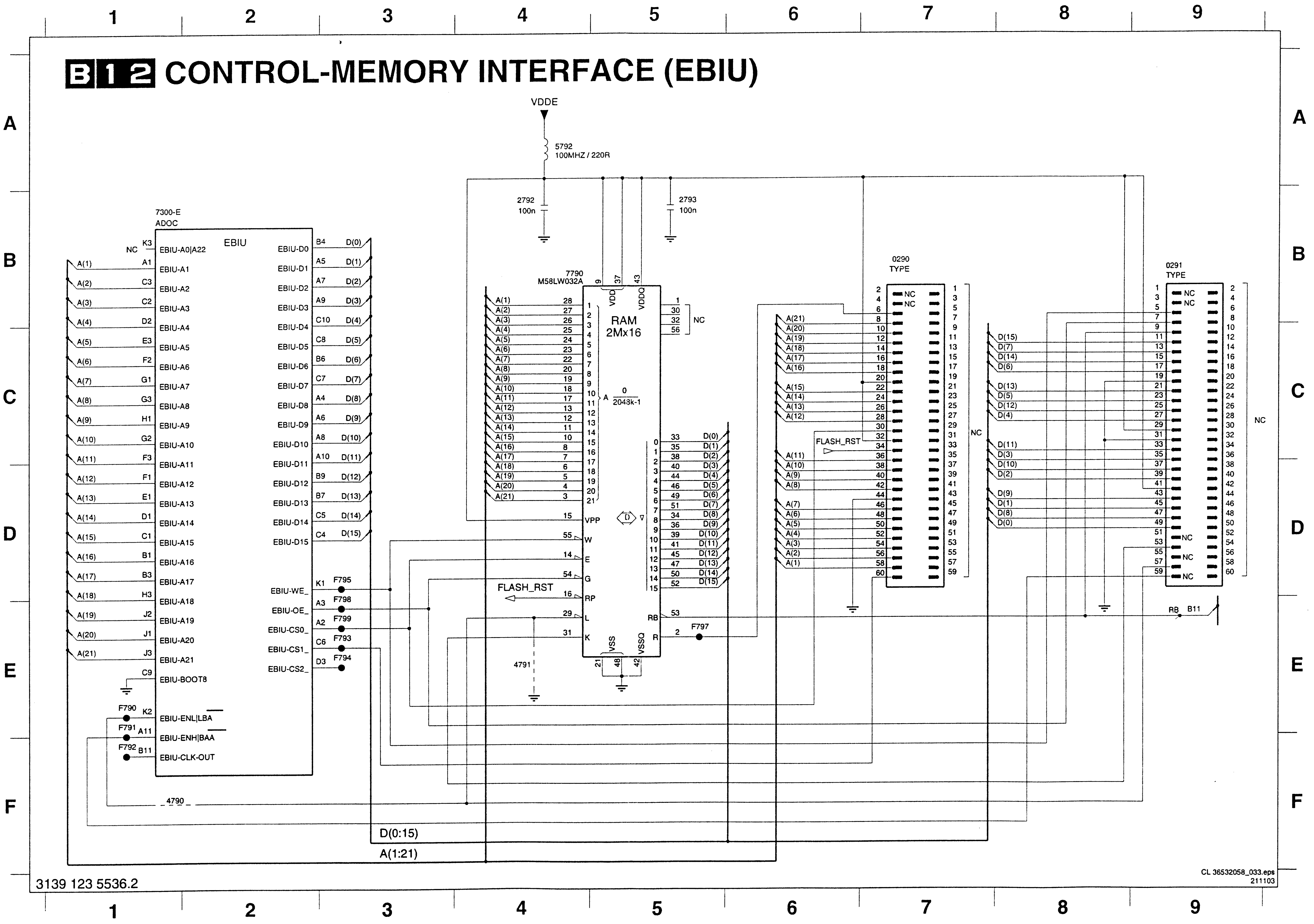
SSB: Control-Memory Interface (EBIU)


B12 CONTROL-MEMORY INTERFACE (EBIU)
1 2 3 4 5 6 7 8 9
A B C D E F
VDDE
5792
100MHZ / 220R
2792
100n
2793
100n
7300-E
ADOC
EBIU
NC
EBIU-A0|A22
EBIU-A1 … EBIU-A21
EBIU-BOOT8
EBIU-ENL|LBA
EBIU-ENH|BAA
EBIU-CLK-OUT
EBIU-D0 … EBIU-D15
EBIU-WE_
EBIU-OE_
EBIU-CS0_
EBIU-CS1_
EBIU-CS2_
K3 A1 C3 C2 D2 E3 F2 G1 G3 H1 G2 F3 F1 E1 D1 C1 B1 B3 H3 J2 J1 J3 C9 K2 A11 B11
B4 A5 A7 A9 C10 C8 B6 C7 A4 A6 A8 A10 B9 B7 C5 C4 K1 A3 A2 C6 D3
A(1) … A(21)
D(0) … D(15)
F790 F791 F792
F795 F798 F799 F793 F794
7790
M58LW032A
RAM
2Mx16
VDD
VDDQ
VPP
W
E
G
RP
L
K
RB
R
VSS
VSSQ
A 0 / 2043k-1
NC
FLASH_RST
4791
F797
53
0290
TYPE
0291
TYPE
NC
FLASH_RST
RB B11
4790
D(0:15)
A(1:21)
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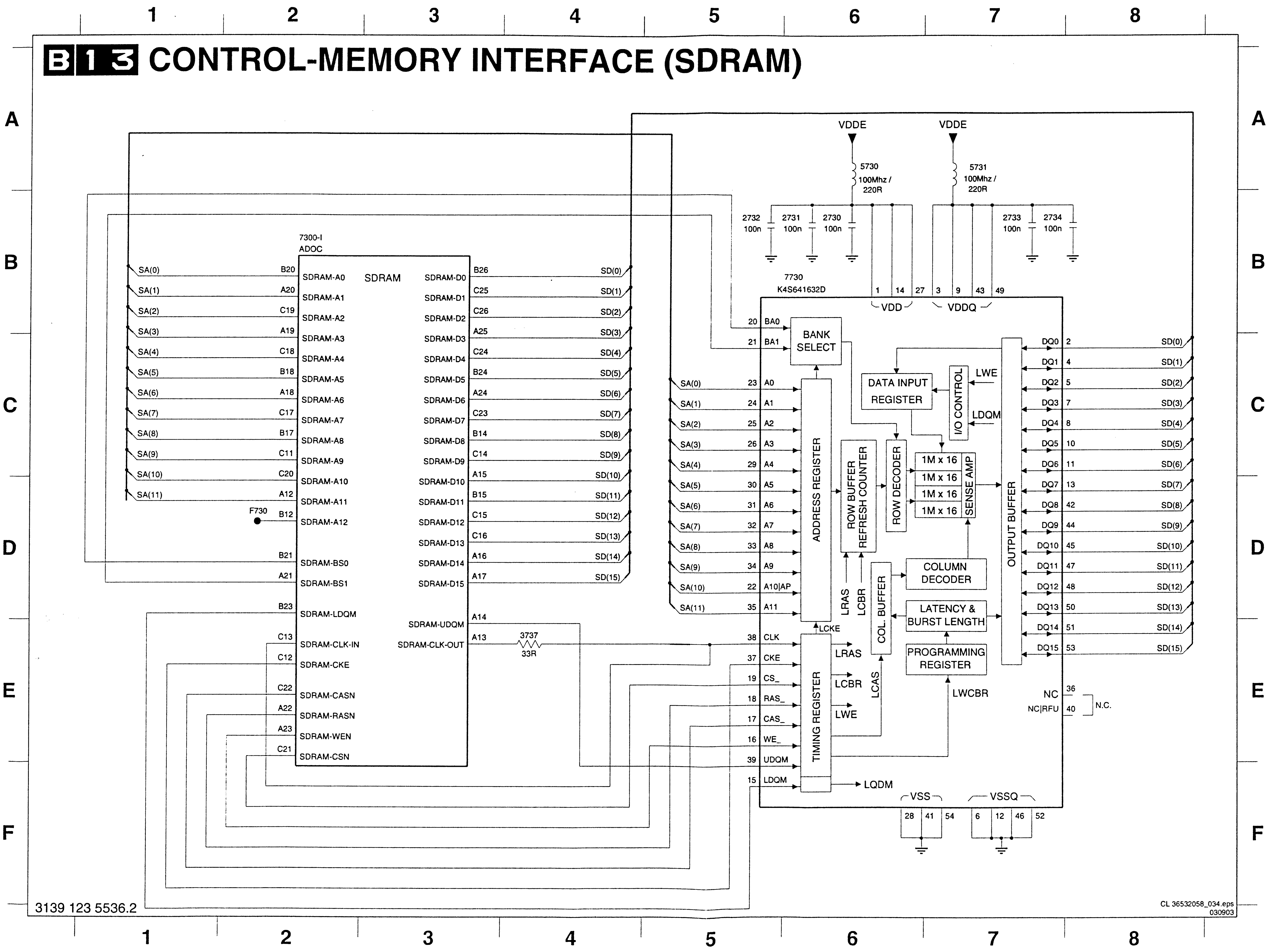
0290	B7
0291	B9
2792	B4
2793	B6
4790	F1
4791	E4
5792	A4
7300-E	B1
7790	B4
F790	E1
F791	E1
F792	F1
F793	E3
F794	E3
F795	D3
F797	E5
F798	E3
F799	E3

SSB: Control-Memory Interface (SDRAM)

B13 CONTROL-MEMORY INTERFACE (SDRAM)


7300-I
ADOC
SDRAM
SA(0) B20 SDRAM-A0
SA(1) A20 SDRAM-A1
SA(2) C19 SDRAM-A2
SA(3) A19 SDRAM-A3
SA(4) C18 SDRAM-A4
SA(5) B18 SDRAM-A5
SA(6) A18 SDRAM-A6
SA(7) C17 SDRAM-A7
SA(8) B17 SDRAM-A8
SA(9) C11 SDRAM-A9
SA(10) C20 SDRAM-A10
SA(11) A12 SDRAM-A11
F730 B12 SDRAM-A12
B21 SDRAM-BS0
A21 SDRAM-BS1
B23 SDRAM-LDQM
C13 SDRAM-CLK-IN
C12 SDRAM-CKE
C22 SDRAM-CASN
A22 SDRAM-RASN
A23 SDRAM-WEN
C21 SDRAM-CSN
SDRAM-D0 B26 SD(0)
SDRAM-D1 C25 SD(1)
SDRAM-D2 C26 SD(2)
SDRAM-D3 A25 SD(3)
SDRAM-D4 C24 SD(4)
SDRAM-D5 B24 SD(5)
SDRAM-D6 A24 SD(6)
SDRAM-D7 C23 SD(7)
SDRAM-D8 B14 SD(8)
SDRAM-D9 C14 SD(9)
SDRAM-D10 A15 SD(10)
SDRAM-D11 B15 SD(11)
SDRAM-D12 C15 SD(12)
SDRAM-D13 C16 SD(13)
SDRAM-D14 A16 SD(14)
SDRAM-D15 A17 SD(15)
SDRAM-UDQM A14
SDRAM-CLK-OUT A13
3737
33R
VDDE
5730
100Mhz /
220R
5731
100Mhz /
220R
2732 100n
2731 100n
2730 100n
2733 100n
2734 100n
7730
K4S641632D
1 14 27 3 9 43 49
VDD
VDDQ
20 BA0
21 BA1
BANK SELECT
23 A0
24 A1
25 A2
26 A3
29 A4
30 A5
31 A6
32 A7
33 A8
34 A9
22 A10|AP
35 A11
38 CLK
37 CKE
19 CS_
18 RAS_
17 CAS_
16 WE_
39 UDQM
15 LDQM
ADDRESS REGISTER
TIMING REGISTER
LCKE
LRAS
LCBR
LWE
LCAS
LQDM
ROW BUFFER REFRESH COUNTER
ROW DECODER
1M x 16
1M x 16
1M x 16
1M x 16
SENSE AMP
DATA INPUT REGISTER
I/O CONTROL
LWE
LDQM
COL. BUFFER
COLUMN DECODER
LATENCY & BURST LENGTH
PROGRAMMING REGISTER
LWCBR
OUTPUT BUFFER
DQ0 2 SD(0)
DQ1 4 SD(1)
DQ2 5 SD(2)
DQ3 7 SD(3)
DQ4 8 SD(4)
DQ5 10 SD(5)
DQ6 11 SD(6)
DQ7 13 SD(7)
DQ8 42 SD(8)
DQ9 44 SD(9)
DQ10 45 SD(10)
DQ11 47 SD(11)
DQ12 48 SD(12)
DQ13 50 SD(13)
DQ14 51 SD(14)
DQ15 53 SD(15)
NC 36
NC|RFU 40
N.C.
VSS
28 41 54
VSSQ
6 12 46 52
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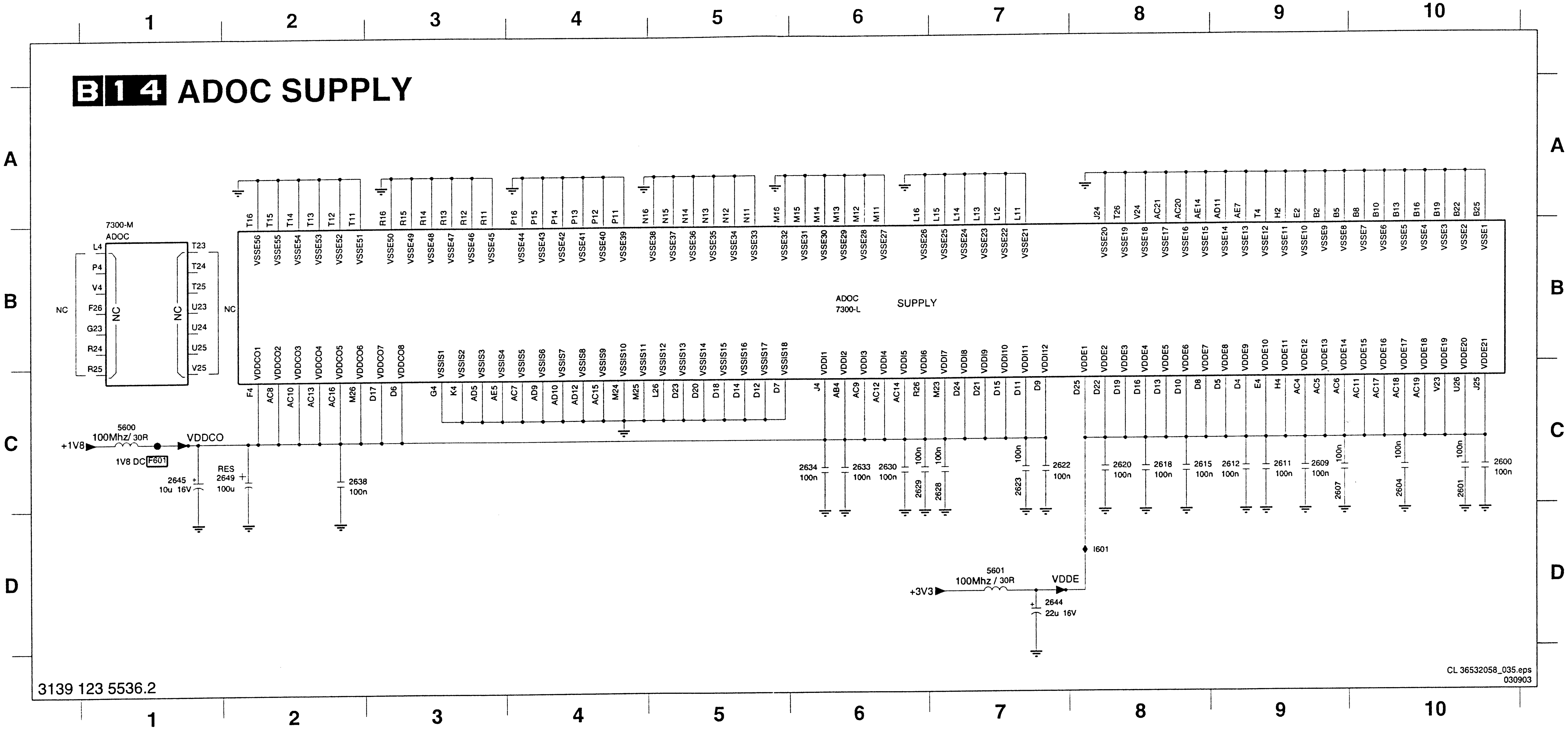
2730	B6
2731	B6
2732	B5
2733	B7
2734	B7
3737	E4
5730	A6
5731	A7
7300-I	B2
7730	B6
F730	D2

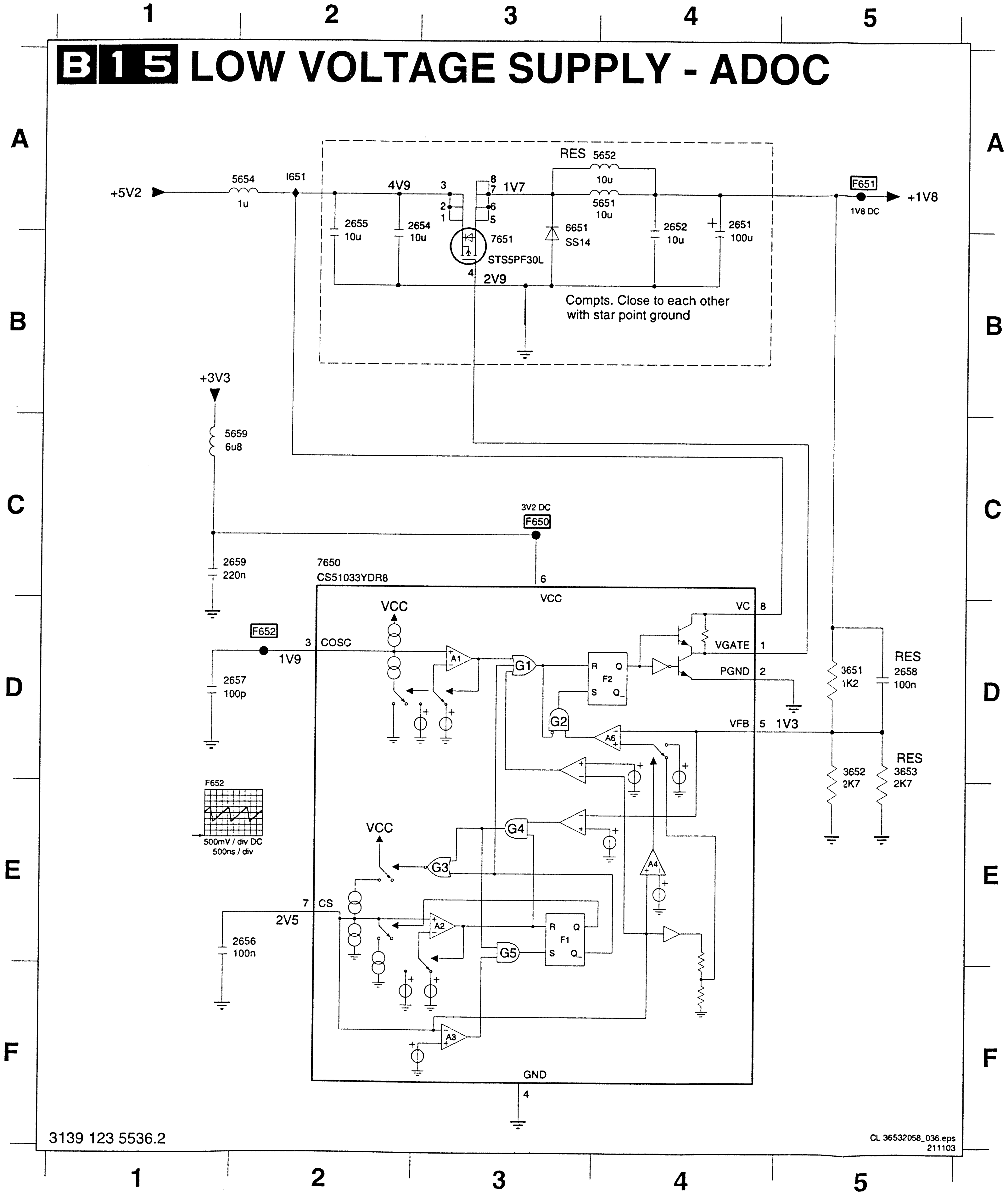
SSB: ADOC Supply

2600 C10
2601 C10
2604 C10
2607 C9
2609 C9
2611 C9
2612 C9
2615 C8
2618 C8
2620 C8
2622 C7
2623 C7
2628 C7
2629 C6
2630 C6
2633 C6
2634 C6
2638 C2
2644 D7
2645 C1
2649 C2
5600 C1
5601 D7
7300-L B6
7300-M A1
F601 C1
I601 D8



1
2
3
4
5
6
7
8
9
10
A
B
C
D
B14 ADOC SUPPLY
7300-M
ADOC
NC
ADOC
7300-L
SUPPLY
VSSE1 … VSSE56
VSSIS1 … VSSIS18
VDDCO1 … VDDCO8
VDDI1 … VDDI12
VDDE1 … VDDE21
+1V8
5600
100Mhz/ 30R
1V8 DC
F601
VDDCO
2645
10u 16V
RES
2649
100u
2638
100n
2634
100n
2633
100n
2630
100n
2629
2628
2623
2622
100n
2620
100n
2618
100n
2615
100n
2612
100n
2611
100n
2609
100n
2607
2604
2601
2600
100n
I601
+3V3
5601
100Mhz / 30R
VDDE
2644
22u 16V
3139 123 5536.2
CL 36532058_035.eps
030903

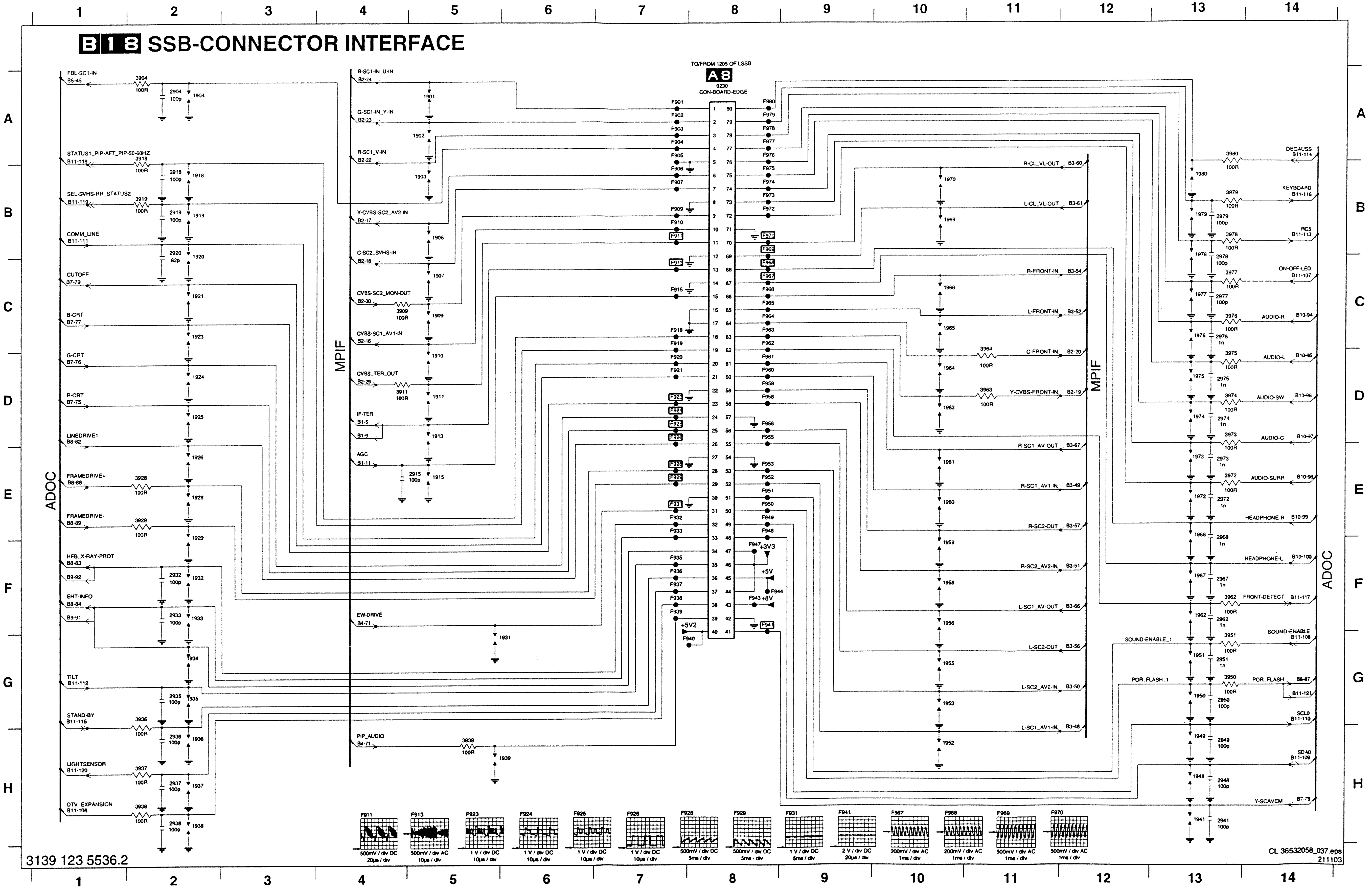
SSB: Low Voltage Supply ADOC


B 1 5 LOW VOLTAGE SUPPLY - ADOC
1 2 3 4 5
A B C D E F
+5V2
5654
1u
I651
4V9
3
2
1
8
7 1V7
6
5
2655
10u
2654
10u
7651
STS5PF30L
4
2V9
RES 5652
10u
5651
10u
6651
SS14
2652
10u
2651
100u
F651
1V8 DC
+1V8
Compts. Close to each other
with star point ground
+3V3
5659
6u8
3V2 DC
F650
2659
220n
7650
CS51033YDR8
6
VCC
VCC
VC 8
VGATE 1
PGND 2
VFB 5 1V3
F652
3 COSC
1V9
A1
G1
R Q
F2
S Q_
G2
A6
2657
100p
3651
1K2
RES
2658
100n
RES
3653
2K7
3652
2K7
F652
500mV / div DC
500ns / div
VCC
G4
G3
A4
7 CS
2V5
A2
R Q
F1
S Q_
G5
2656
100n
A3
GND
4
3139 123 5536.2
CL 36532058_036.eps
211103

2651	A4
2652	A4
2654	A2
2655	A2
2656	E2
2657	D2
2658	D5
2659	C2
3651	D5
3652	D5
3653	D5
5651	A4
5652	A4
5654	A2
5659	C2
6651	A3
7650	C2
7651	B3
F650	C3
F651	A5
F652	D2
I651	A2

SSB: Connector Interface

0230 A8	1907 C5	1918 B2	1925 D2	1933 F2	1939 H6	1952 H10	1960 E10	1966 C10	1973 E13	1979 B13	2920 B2	2938 H2	2962 F13	2975 D13	3909 C4	3936 G2	3962 F13	3975 D13	F901 A7	F907 B7	F918 C7	F925 D7	F933 E7	F940 G8	F949 E8	F956 D8	F963 C8	F969 B8	F976 A8
1901 A5	1909 C5	1919 B2	1926 E2	1934 G2	1941 H13	1953 G10	1961 E10	1967 F13	1974 D13	1980 B13	2932 F2	2941 H13	2967 F13	2976 C13	3911 D4	3937 H2	3963 D11	3976 C13	F902 A7	F909 B7	F919 C7	F926 D7	F935 F7	F941 F8	F950 E8	F958 D8	F964 C8	F970 B8	F977 A8
1902 A5	1910 D5	1920 B2	1928 E2	1935 G2	1948 H13	1955 G10	1962 F13	1968 E13	1975 D13	2904 A2	2933 F2	2948 H13	2968 E13	2977 C13	3918 A2	3938 H2	3964 D11	3977 C13	F903 A7	F910 B7	F920 D7	F928 E7	F936 F7	F943 F8	F951 E8	F959 D8	F965 C8	F972 B8	F978 A8
1903 B5	1911 D5	1921 C2	1929 E2	1936 H2	1949 H13	1956 F10	1963 D10	1969 B10	1976 C13	2915 E5	2935 G2	2949 H13	2972 E13	2978 C13	3919 B2	3939 H5	3972 E13	3978 B13	F904 A7	F911 B7	F921 D7	F929 E7	F937 F7	F944 F8	F952 E8	F960 D8	F966 C8	F973 B8	F979 A8
1904 A2	1913 D5	1923 C2	1931 G6	1937 H2	1950 G13	1958 F10	1964 D10	1970 B10	1977 C13	2918 B2	2936 H2	2950 G13	2973 E13	2979 B13	3928 E2	3950 G13	3973 D13	3979 B13	F905 A7	F913 C7	F923 D7	F931 E7	F938 F7	F947 F8	F953 E8	F961 D8	F967 C8	F974 B8	F980 A8
1906 B5	1915 E5	1924 D2	1932 F2	1938 H2	1951 G13	1959 F10	1965 C10	1972 E13	1978 C13	2919 B2	2937 H2	2951 G13	2974 D13	3904 A2	3929 E2	3951 G13	3974 D13	3980 A13	F906 B7	F915 C7	F924 D7	F932 E7	F939 F7	F948 E8	F955 D8	F962 C8	F968 C8	F975 B8	


1 2 3 4 5 6 7 8 9 10 11 12 13 14
A B C D E F G H
B18 SSB-CONNECTOR INTERFACE
ADOC
MPIF
FBL-SC1-IN B5-45
STATUS1_PIP-AFT_PIP-50-60HZ B11-118
SEL-SVHS-RR_STATUS2 B11-119
COMM_LINE B11-111
CUTOFF B7-79
B-CRT B7-77
G-CRT B7-76
R-CRT B7-75
LINEDRIVE1 B8-82
FRAMEDRIVE+ B8-88
FRAMEDRIVE- B8-89
HFB_X-RAY-PROT B8-83
B9-92
EHT-INFO B8-84
B9-91
TILT B11-112
STAND-BY B11-115
LIGHTSENSOR B11-120
DTV EXPANSION B11-106
3904 3918 3919 3928 3929 3936 3937 3938
100R
2904 2918 2919 2932 2933 2935 2936 2937 2938
100p
2920 82p
1904 1918 1919 1920 1921 1923 1924 1925 1926 1928 1929 1932 1933 1934 1935 1936 1937 1938
B-SC1-IN_U-IN B2-24
G-SC1-IN_Y-IN B2-23
R-SC1_V-IN B2-22
Y-CVBS-SC2_AV2-IN B2-17
C-SC2_SVHS-IN B2-18
CVBS-SC2_MON-OUT B2-30
CVBS-SC1_AV1-IN B2-16
CVBS_TER_OUT B2-29
IF-TER B1-5
B1-9
AGC B1-11
EW-DRIVE B4-71
PIP_AUDIO B4-71
3909 3911 3939 100R
2915 100p
1901 1902 1903 1906 1907 1909 1910 1911 1913 1915 1931 1939
TO/FROM 1205 OF LSSB
A8
0230
CON-BOARD-EDGE
F901 F902 F903 F904 F905 F906 F907 F909 F910 F911 F913 F915 F918 F919 F920 F921 F923 F924 F925 F926 F928 F929 F931 F932 F933 F935 F936 F937 F938 F939 F940
+5V2
F980 F979 F978 F977 F976 F975 F974 F973 F972 F970 F969 F968 F967 F966 F965 F964 F963 F962 F961 F960 F959 F958 F956 F955 F953 F952 F951 F950 F949 F948 F947 F944 F943 F941
+3V3
+5V
+8V
R-CL_VL-OUT B3-60
L-CL_VL-OUT B3-61
R-FRONT-IN B3-54
L-FRONT-IN B3-52
C-FRONT-IN B2-20
Y-CVBS-FRONT-IN B2-19
R-SC1_AV-OUT B3-67
R-SC1_AV1-IN B3-49
R-SC2-OUT B3-57
R-SC2_AV2-IN B3-51
L-SC1_AV-OUT B3-66
L-SC2-OUT B3-56
L-SC2_AV2-IN B3-50
L-SC1_AV1-IN B3-48
3964 3963 100R
1970 1969 1966 1965 1964 1963 1961 1960 1959 1958 1956 1955 1953 1952
DEGAUSS B11-114
KEYBOARD B11-116
RC5 B11-113
ON-OFF-LED B11-107
AUDIO-R B10-94
AUDIO-L B10-95
AUDIO-SW B10-96
AUDIO-C B10-97
AUDIO-SURR B10-98
HEADPHONE-R B10-99
HEADPHONE-L B10-100
FRONT-DETECT B11-117
SOUND-ENABLE_1
SOUND-ENABLE B11-108
POR_FLASH_1
POR_FLASH B8-87
B11-121
SCL0 B11-110
SDA0 B11-109
Y-SCAVEM B7-78
3980 3979 3978 3977 3976 3975 3974 3973 3972 3962 3951 3950 100R
2979 2978 2977 100p
2976 2975 2974 2973 2972 2968 2967 2962 2951 1n
2950 2949 2948 2941 100p
1980 1979 1978 1977 1976 1975 1974 1973 1972 1968 1967 1962 1951 1950 1949 1948 1941
F911 500mV / div DC 20µs / div
F913 500mV / div AC 10µs / div
F923 1 V / div DC 10µs / div
F924 1 V / div DC 10µs / div
F925 1 V / div DC 10µs / div
F926 1 V / div DC 10µs / div
F928 500mV / div DC 5ms / div
F929 500mV / div DC 5ms / div
F931 1 V / div DC 5ms / div
F941 2 V / div DC 20µs / div
F967 200mV / div AC 1ms / div
F968 200mV / div AC 1ms / div
F969 500mV / div AC 1ms / div
F970 500mV / div AC 1ms / div
3139 123 5536.2
CL 36532058_037.eps 211103

Layout SSB (Overview LOT Side)

1113	C2
1116	B1
1118	A1
1581	C3
1582	A6
2002	A3
2006	A2
2014	B2
2015	B2
2016	B3
2021	B2
2022	B3
2031	A2
2032	B2
2033	B2
2038	A3
2039	B3
2040	A3
2043	B2
2044	B2
2045	B2
2046	A2
2047	B2
2048	B2
2049	B2
2050	B2
2051	B2
2060	C1
2062	B1
2078	A2
2079	A2
2081	A2
2082	B1
2088	A1
2101	C2
2102	C2
2103	C2
2115	C2
2119	B2
2126	B2
2127	B2
2128	B3
2130	B2
2132	C2
2133	C2
2134	B2
2135	C2
2136	B2
2137	B2
2138	B2
2150	B1
2151	B1
2152	B1
2154	C1
2155	B2
2156	A2
2157	A2
2281	B5
2282	B4
2284	B5
2285	C4
2300	B4
2305	C5
2310	C4
2324	C5
2325	C4
2326	D4
2341	C4
2342	C5
2343	C5
2344	C4
2345	C4
2346	C4
2350	C5
2351	C5
2352	C5
2358	C5
2359	C5
2360	C5
2371	C4
2372	C4
2377	C4
2379	C4
2430	A4
2431	A4
2432	A4
2433	A4
2434	A4
2435	A4
2436	A3
2437	A5
2438	A4
2439	A4
2440	A4
2441	A4
2442	A4
2443	A4
2444	A4
2445	A4
2447	A3
2450	B4
2451	A4
2452	B4
2453	A3
2454	A4
2457	A4
2458	A4
2461	A5
2462	A4
2465	A3
2467	A4
2468	A3
2480	A5
2481	A5
2483	A6
2484	A5
2485	A6
2486	A6
2487	A6
2488	A6
2489	A7
2514	B4
2516	C4
2525	B3
2546	B4
2557	B4
2571	A5
2581	C3
2582	C3
2583	C4
2584	A7
2600	B5
2601	B4
2604	B4
2607	B4
2609	C4
2611	C5
2612	C5
2615	B5
2618	B5
2620	B5
2622	B5
2623	B5
2628	B5
2629	B5
2630	B4
2633	B4
2634	C5
2638	B4
2644	B4
2645	B5
2649	B5
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2654	C6
2655	C6
2656	C7
2657	C7
2658	C6
2659	C6
2730	A6
2731	A6
2732	A7
2733	A6
2734	B6
2792	C6
2793	B6
2904	D2
2915	D2
2918	D2
2919	D2
2920	D3
2937	D3
2938	C4
2941	C4
2948	C3
2949	C3
2950	C4
2951	C4
2962	C6
2967	C7
2968	C7
2972	D7
2973	D7
2974	D7
2975	D7
2976	D7
2977	C4
2978	C3
2979	D6
3002	B3
3004	B3
3006	A3
3010	B2
3011	B2
3012	B2
3013	B1
3016	B2
3018	A2
3019	B3
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3026	A3
3027	B3
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3063	C1
3066	B1
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3070	A1
3101	C2
3102	C2
3103	C2
3104	C2
3105	C2
3106	C2
3112	C2
3116	B2
3131	B2
3132	B2
3133	B2
3134	C2
3135	B2
3137	C2
3138	B2
3150	B1
3151	B1
3152	B1
3281	A5
3282	A5
3283	A5
3284	A5
3302	C4
3303	D5
3304	D4
3305	C5
3306	C4
3318	C4
3324	C4
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3328	C4
3334	C4
3335	C4
3336	C4
3337	C4
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3341	C4
3343	C4
3346	C4
3347	C4
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3349	D4
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3357	C5
3358	C5
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3374	C4
3375	C4
3388	C4
3390	C4
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3435	A4
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3437	A4
3439	A3
3440	A3
3441	A3
3442	A3
3443	A3
3444	A3
3445	A4
3446	A4
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3448	A4
3449	A4
3450	A4
3452	A4
3453	A4
3454	A4
3455	A4
3456	A4
3457	A4
3458	A3
3459	A4
3460	A3
3461	A4
3462	A4
3463	A4
3465	A5
3468	A4
3480	A6
3481	A5
3482	A5
3483	A6
3484	A5
3485	A5
3501	C4
3502	C4
3503	C4
3504	C4
3507	C4
3508	C4
3511	B4
3512	C4
3513	B3
3515	B3
3518	C4
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3530	B4
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3544	B3
3546	B4
3547	B4
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3563	B4
3564	B4
3565	B4
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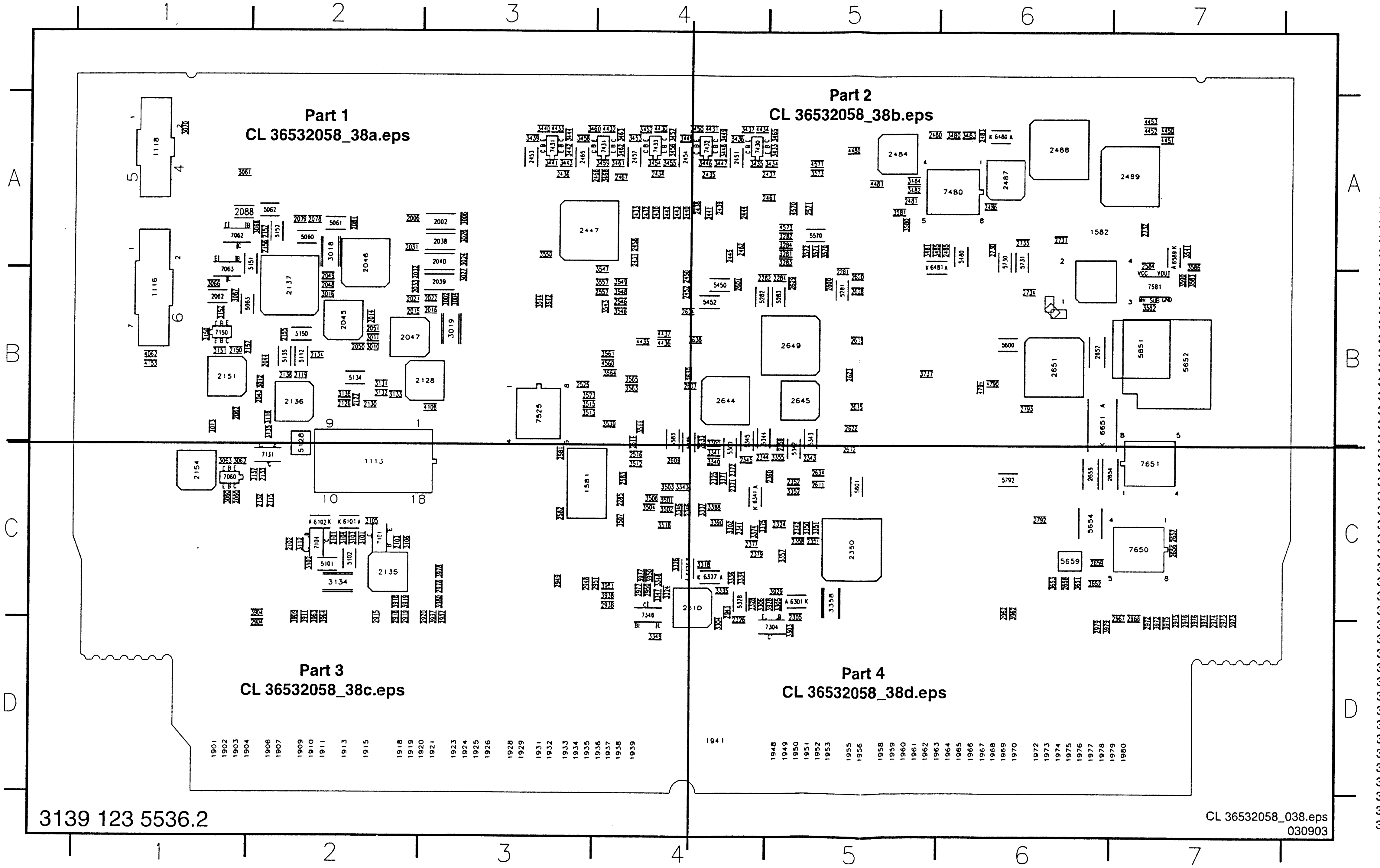
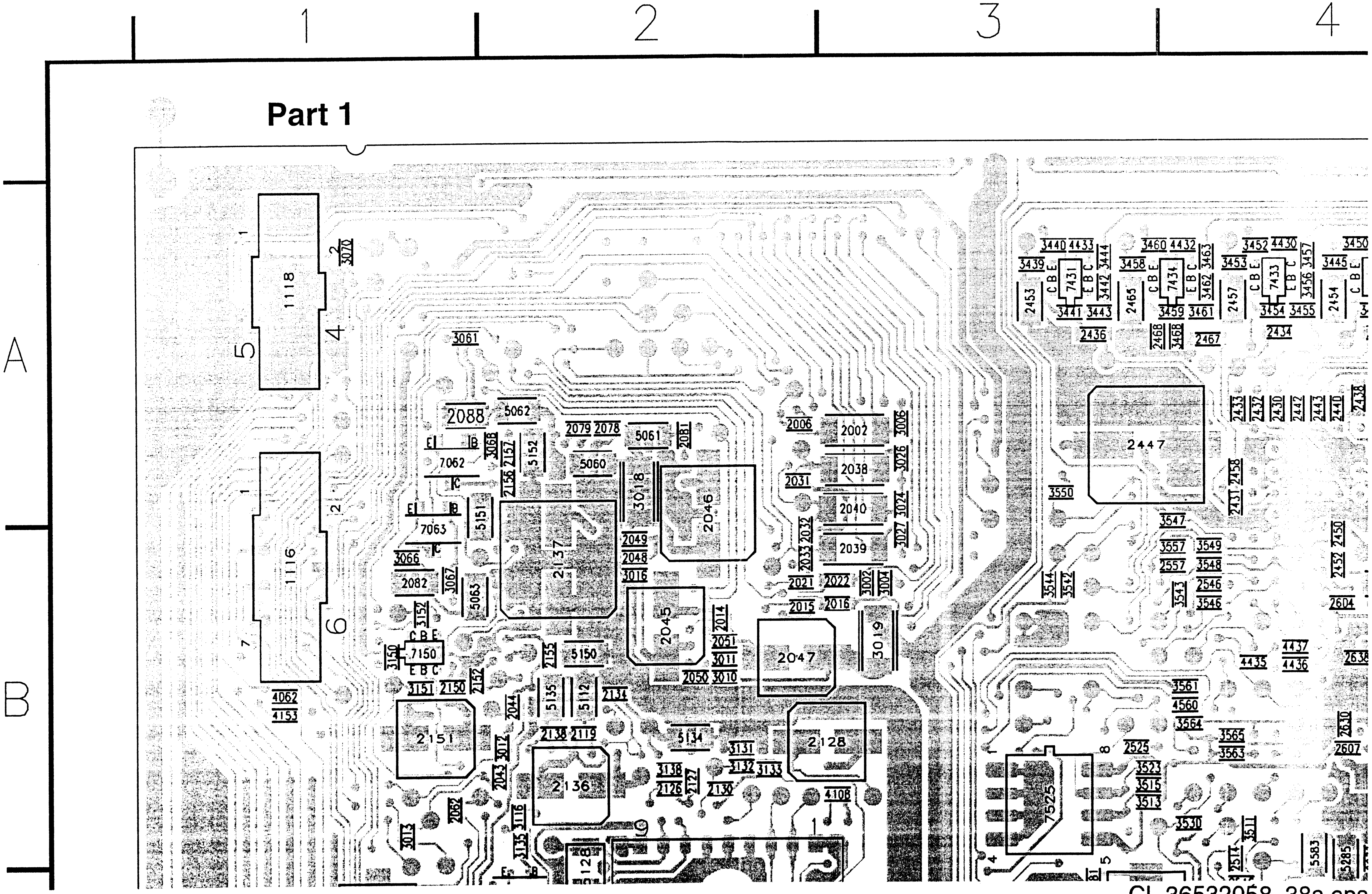
3571	A5
3572	A5
3573	A5
3580	A5
3581	A5
3582	B7
3583	B7
3586	A7
3590	B7
3651	C6
3652	C6
3653	C6
3737	B5
3904	C2
3909	D2
3911	D2
3918	C2
3919	C2
3928	C5
3929	C5
3937	D3
3938	C4
3950	C4
3951	C4
3962	C6
3963	D2
3964	D2
3972	D7
3973	D7
3974	D7
3975	D7
3976	D7
3977	C4
3978	C3
3979	D6
3980	C3
4062	B1
4108	B3
4153	B1
4430	A4
4431	A4
4432	A4
4433	A3
4434	A4
4435	B4
4436	B4
4437	B4
4450	A7
4451	A7
4452	A7
4453	A7
4480	A5
4481	A5
4560	B4
4570	A5
4571	A5
4573	A5
4790	B6
4791	B6
5060	A2
5061	A2
5062	A2
5063	B1
5101	C2
5102	C2
5112	B2
5128	C2
5134	B2
5135	B2
5150	B2
5151	A2
5152	A2
5281	B5
5282	B4
5283	B5
5285	B4
5300	C4
5328	C4
5342	C5
5343	B5
5344	B4
5345	B4
5450	B4
5452	B4
5480	A6
5570	A5
5583	B4
5600	B6
5601	C5
5651	B7
5652	B7
5654	C6
5659	C6
5730	A6
5731	A6
5792	C6
6101	C2
6102	C2
6301	C5
6326	C4
6327	C4
6341	C4
6480	A6
6481	A5
6589	A7
6651	B6
7060	C1
7062	A1
7063	B1
7101	C2
7104	C2
7131	C2
7150	B1
7304	D5
7346	C4
7430	A4
7431	A3
7432	A4
7433	A4
7434	A4
7480	A6
7525	B3
7581	B7
7650	C7
7651	C7



Layout SSB (Part 1 LOT Side)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A
B
Part 1
1118
1116
7062
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7150
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5061
2081
5060
3018
2046
2137
2006
2002
3006
2038
3026
2031
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2128
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2452
2049
2048
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2014
2051
3011
2050
3010
2021
2022
2015
2016
3002
3004
2033
2032
2044
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2062
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3135
2131
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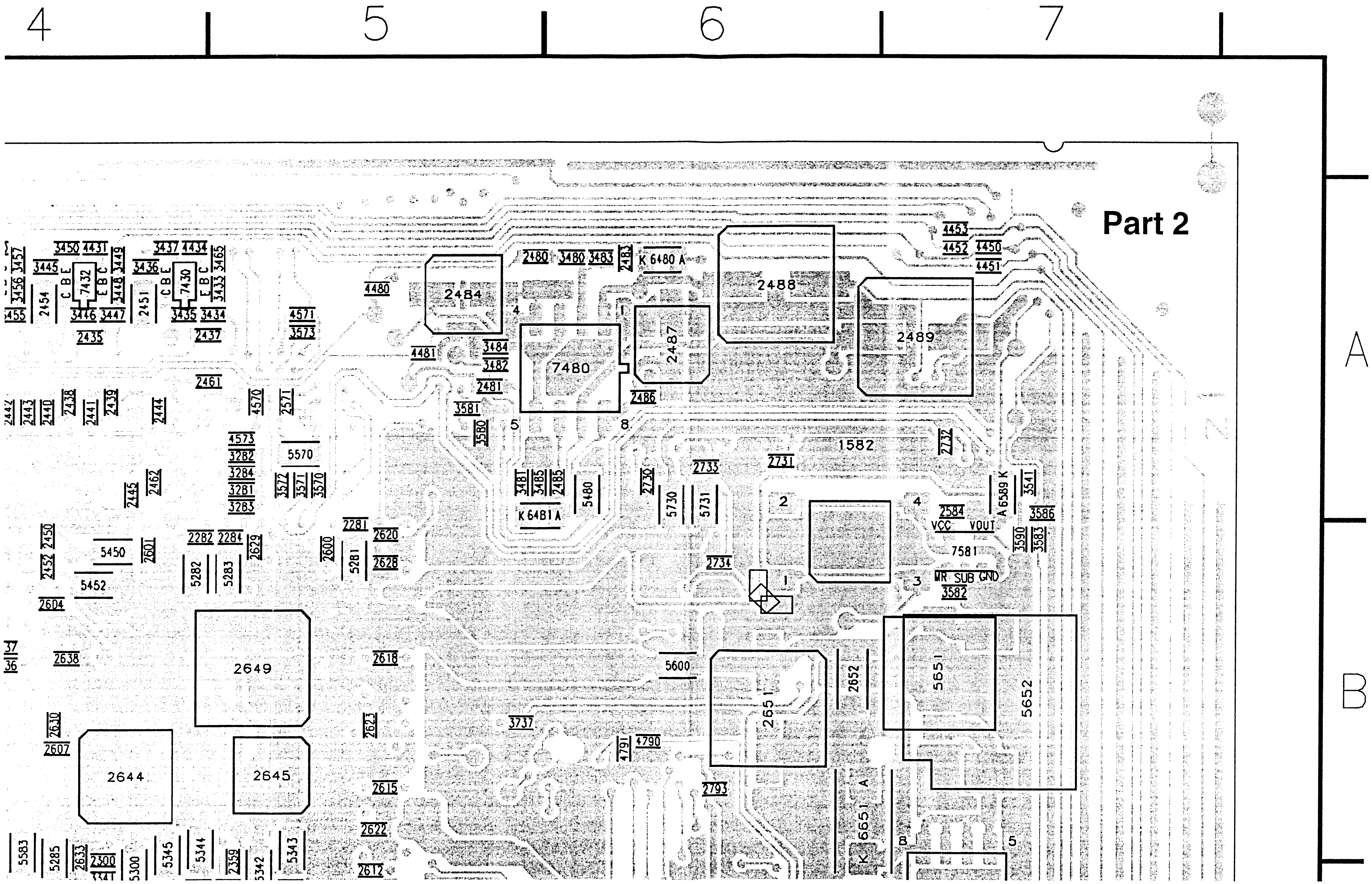
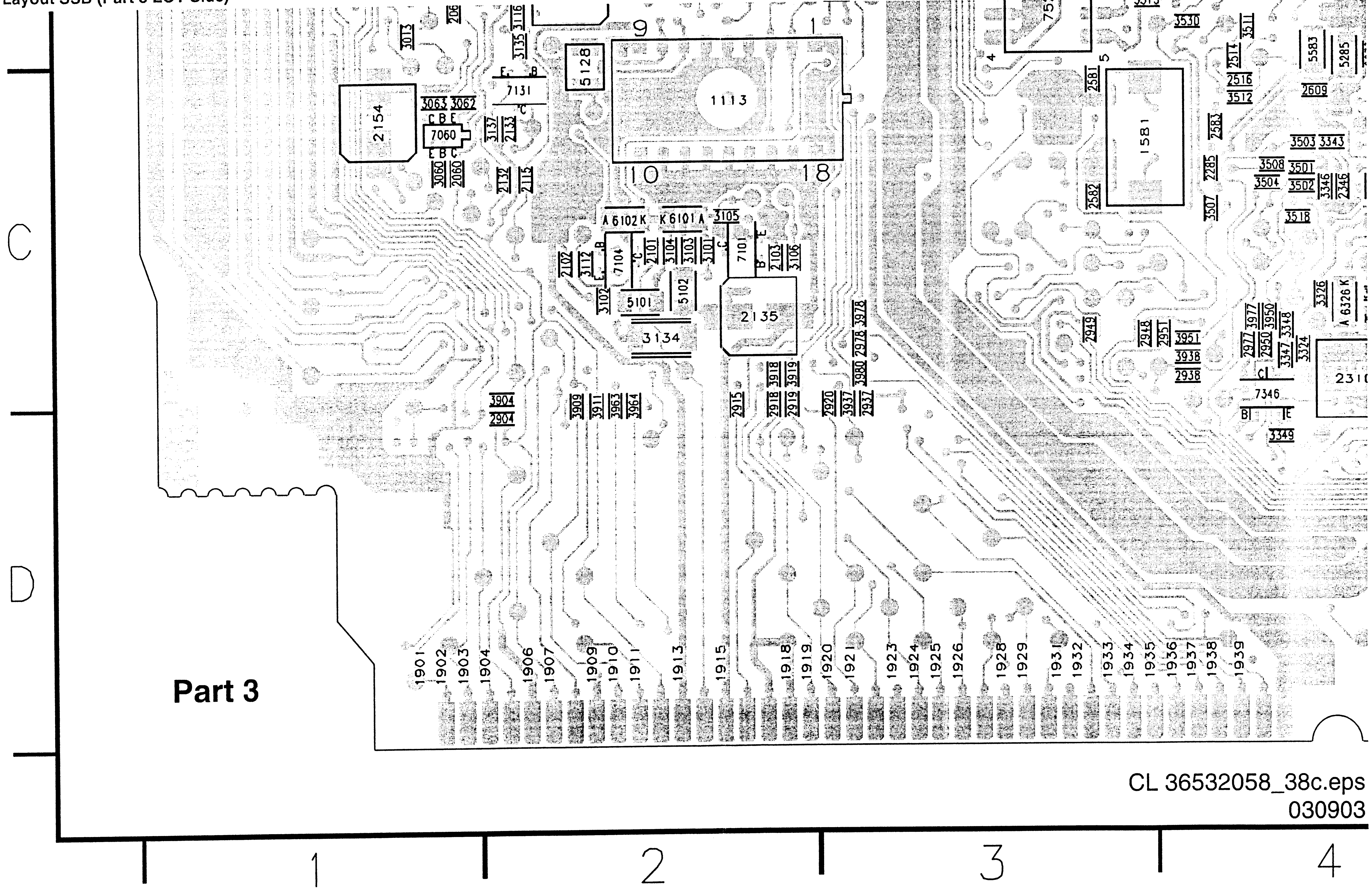
2156
5152
5151
3068

Layout SSB (Part 2 LOT Side)


4
5
6
7
A
B
Part 2
3450 4431 3437 4434
3445 3436
7432 7430
3456 3457 3449 3448 3465 3433
2454 2451
3455 3446 3447 3435 3434
2435 2437
2480 3480 3483 2483 K 6480 A
4480
2484
2488
2487
2489
7480
4453 4452 4450 4451
4571 3573
4481
3484 3482 2481
3581 3580
2486
2461
2442 2443 2440 2438 2441 2439 2444
4570 2571
4573 3282 3284 3281 3283
5570
3572 3571 3570
3481 3486 2485
K 6481 A
5480
2730 5730 5731
2733 2731
1582
2732
K 6589 A
3541
2584
VCC VOUT
7581
3586
3590 3583
MR SUB GND
3582
2734
2445 2462
2450 2432
5450 5452
2601
2604
2282 2284 2629
5282 5283
2600
2281 5281 2620 2628
2649
2618
5600
2652
5651
5652
2651
37 36
2638
2630 2607
2644
2645
2623
3737
4791 4790
2615
2793
K 6651 A
2622
2612
5583 5285 2633 2300 3341 5300 5345 5344 2359 5342 5343
B
5
1 2 3 4 8

CL 36532058_38b.eps
030903

Layout SSB (Part 3 LOT Side)


C
D
1
2
3
4
Part 3
2154
7060
3063
3062
3060
2060
7131
3137
2133
2132
2113
3135
3116
3013
5128
1113
9
1
10
18
A 6102 K
K 6101 A
3105
7104
2101
3104
3103
3101
7101
2103
3106
2102
3112
3102
5101
5102
3134
2135
3904
2904
3909
3911
3963
3964
2915
2918
3918
2919
3919
2920
3937
2937
3980
2978
3978
1581
2581
2582
2583
2285
3507
3530
3511
2514
2516
3512
5583
5285
2609
3503
3343
3508
3501
3504
3502
3346
2346
3518
3326
A 6326 K
2949
2948
2951
3951
3938
2938
2977
3977
2950
3950
3347
3348
3324
7346
3349
2310
1901
1902
1903
1904
1906
1907
1909
1910
1911
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1926
1928
1929
1931
1932
1933
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1935
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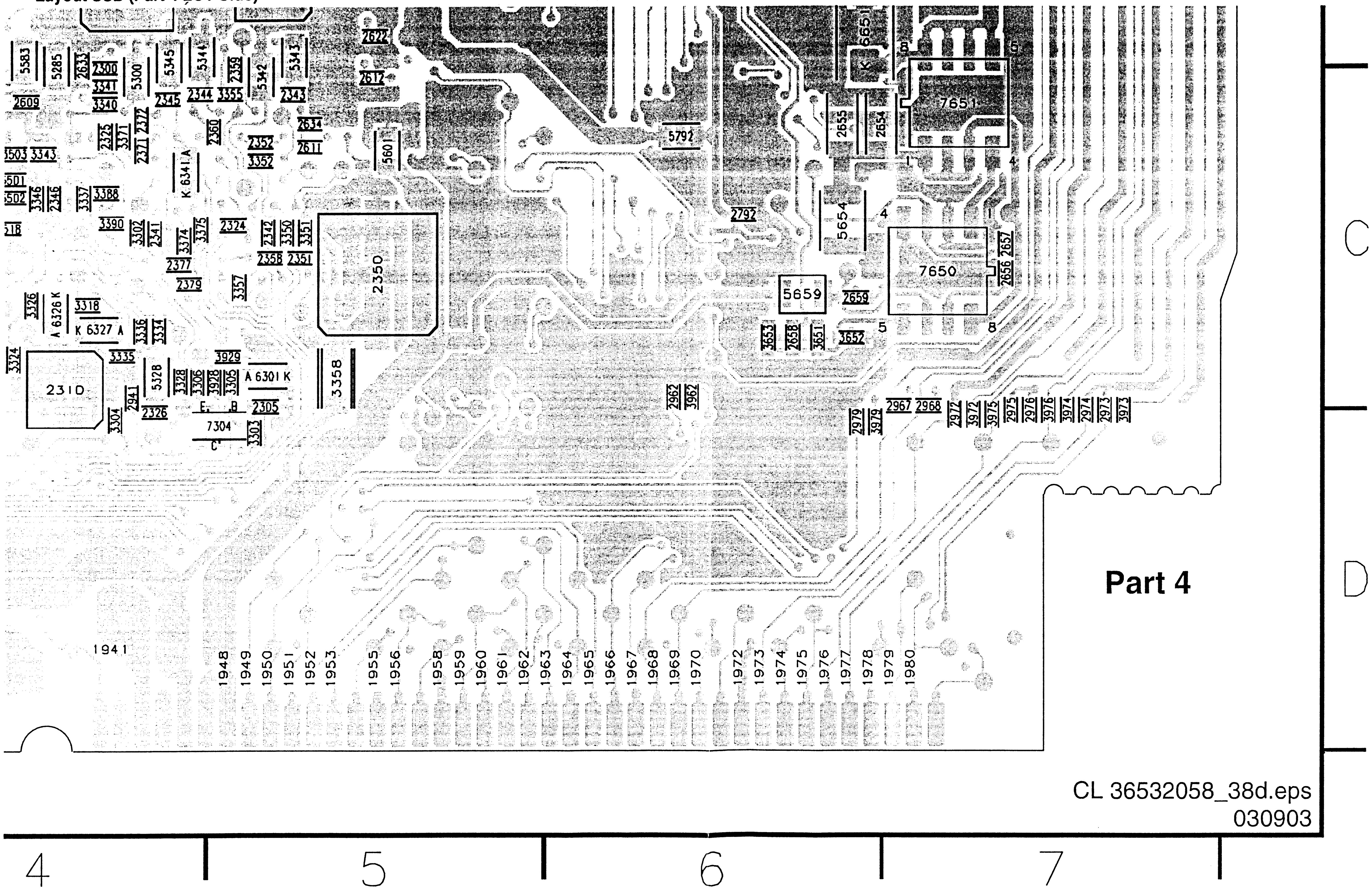
1937
1938
1939

CL 36532058_38c.eps
030903

Layout SSB (Part 4 LOT Side)


5583
5285
2633
2300
3341
3340
5300
5345
5344
2359
5342
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2609
2345
2344
3355
2343
2622
2612
2634
2611
2352
3352
2360
2325
3371
2372
2371
3503
3343
5501
5502
3346
2346
3337
3388
K 6341 A
5601
5792
2792
5651
K
7651
2655
2654
5654
7650
2657
2656
5659
2659
3653
2658
3651
3652
3390
3302
2341
3374
3375
2324
2342
3350
3351
2358
2351
2377
2379
2350
3357
3326
A 6326 K
3318
K 6327 A
3336
3334
3324
2310
3335
3328
3306
3928
3305
3929
A 6301 K
3358
2941
2326
3304
E
B
7304
C
2305
3303
2962
3962
2979
3979
2967
2968
2972
3972
3975
2975
2976
3976
3974
2974
2973
3973
4
1
4
5
8
1941
1948
1949
1950
1951
1952
1953
1955
1956
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1961
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1963
1964
1965
1966
1967
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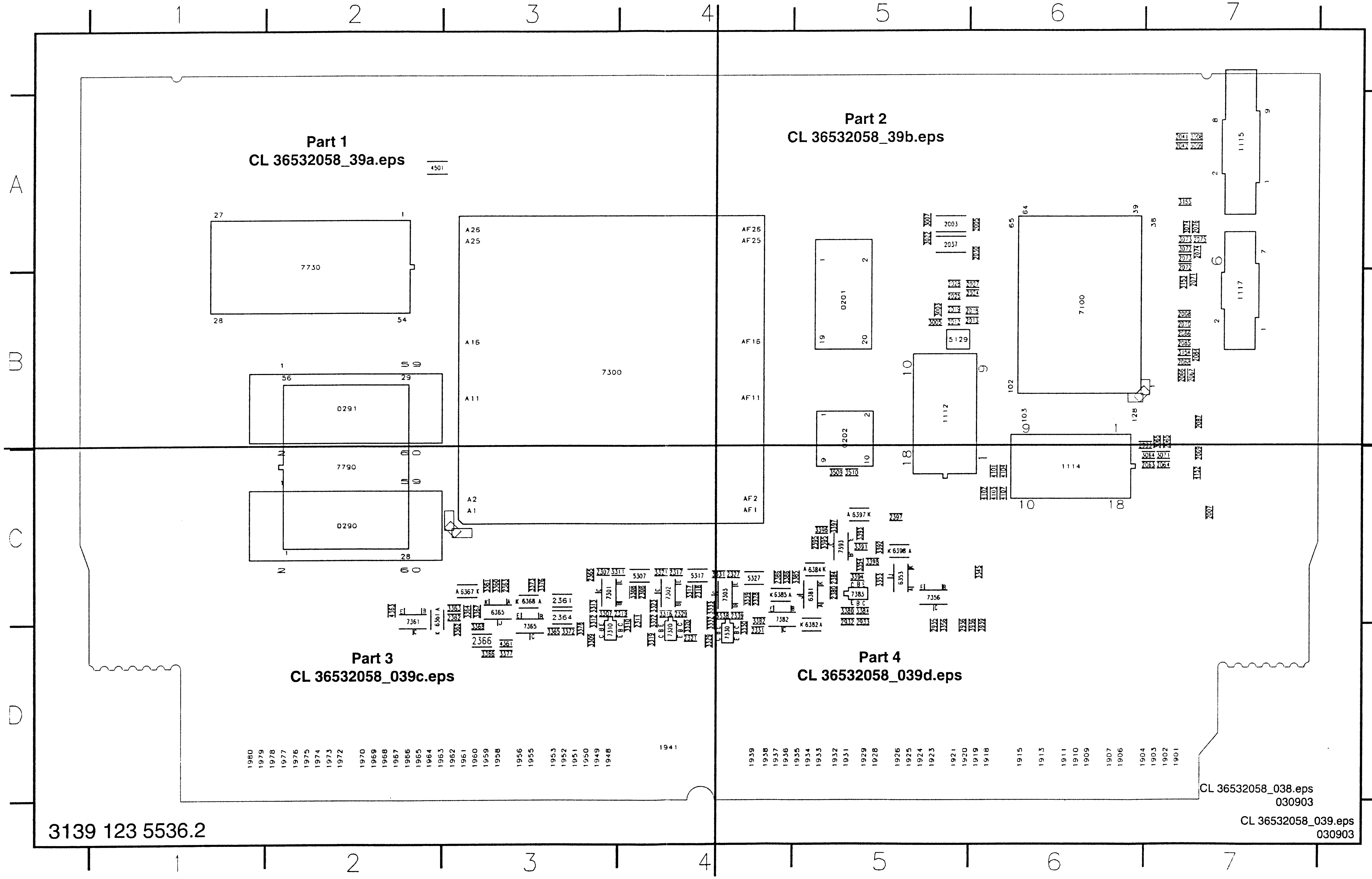
1969
1970
1972
1973
1974
1975
1976
1977
1978
1979
1980
Part 4
C
D
4
5
6
7

CL 36532058_38d.eps
030903

Layout SSB (Overview Tuner Side)

0201	B5
0202	B5
0290	C2
0291	B2
1112	B5
1114	C6
1115	A7
1117	B7
1901	D7
1902	D7
1903	D7
1904	D6
1906	D6
1907	D6
1909	D6
1910	D6
1911	D6
1913	D6
1915	D6
1918	D6
1919	D6
1920	D5
1921	D5
1923	D5
1924	D5
1925	D5
1926	D5
1928	D5
1929	D5
1931	D5
1932	D5
1933	D5
1934	D5
1935	D5
1936	D4
1937	D4
1938	D4
1939	D4
1941	D4
1948	D3
1949	D3
1950	D3
1951	D3
1952	D3
1953	D3
1955	D3
1956	D3
1958	D3
1959	D3
1960	D3
1961	D3
1962	D3
1963	D2
1964	D2
1965	D2
1966	D2
1967	D2
1968	D2
1969	D2
1970	D2
1972	D2
1973	D2
1974	D2
1975	D2
1976	D2
1977	D2
1978	D2
1979	D1
1980	D1
2003	A5
2005	A6
2007	C7
2008	B7
2012	B5
2013	B6
2018	B6
2019	B5
2024	B6
2025	B5
2027	B6
2028	B5
2030	A6
2037	A5
2041	A7
2042	A7
2063	C7
2064	C7
2065	B7
2066	B7
2067	B7
2068	B7
2069	C7
2070	B7
2071	B7
2072	A7
2073	A7
2074	A7
2075	A7
2076	A7
2083	B7
2084	B7
2085	B7
2086	B7
2087	B7
2307	C3
2308	C4
2311	C4
2317	C4
2318	C4
2319	C4
2321	D4
2327	C4
2328	C4
2329	C4
2331	D4
2339	C4
2361	C3
2362	C3
2363	C3
2364	C3
2365	C3
2366	D3
2380	C5
2384	C5
2386	C4
2395	C5
2397	C5
2932	C5
2933	C5
2935	D5
2936	D5
3003	B5
3005	B5
3007	A5
3008	A7
3009	A7
3022	A5
3064	C7
3065	B7
3071	C7
3072	A7
3073	A7
3074	A7
3153	B7
3154	B7
3155	A7
3307	C3
3308	C4
3309	D3
3310	D4
3311	C3
3312	C3
3313	C3
3316	C4
3317	C4
3319	D4
3320	D4
3321	C4
3322	C4
3323	C4
3329	D4
3330	D4
3331	C4
3332	C4
3333	C4
3338	C4
3339	C4
3345	C6
3353	C5
3354	C5
3356	D5
3360	C3
3361	C3
3362	D3
3363	C3
3364	C3
3365	D3
3366	D3
3367	C3
3368	D3
3372	D3
3373	C3
3376	C3
3377	D3
3378	D3
3380	C5
3382	C4
3384	C5
3385	C5
3386	C4
3391	C5
3392	C5
3393	C5
3394	C5
3395	C5
3396	C5
3397	C5
3398	C5
3509	C5
3510	C5
3936	D6
3939	D6
4101	C6
4102	C6
4103	C6
4104	C6
4107	C6
4152	C7
4361	D3
4363	C2
4501	A2
5129	B5
5307	C4
5317	C4
5327	C4
6353	C5
6361	C2
6365	C3
6367	C3
6368	C3
6381	C5
6382	D5
6384	C5
6385	C4
6397	C5
6398	C5
7100	B6
7300	B3
7301	C3
7302	C4
7303	C4
7310	D3
7320	D4
7330	D4
7356	C5
7361	C2
7365	D3
7382	C4
7383	C5
7393	C5
7730	A2
7790	C2

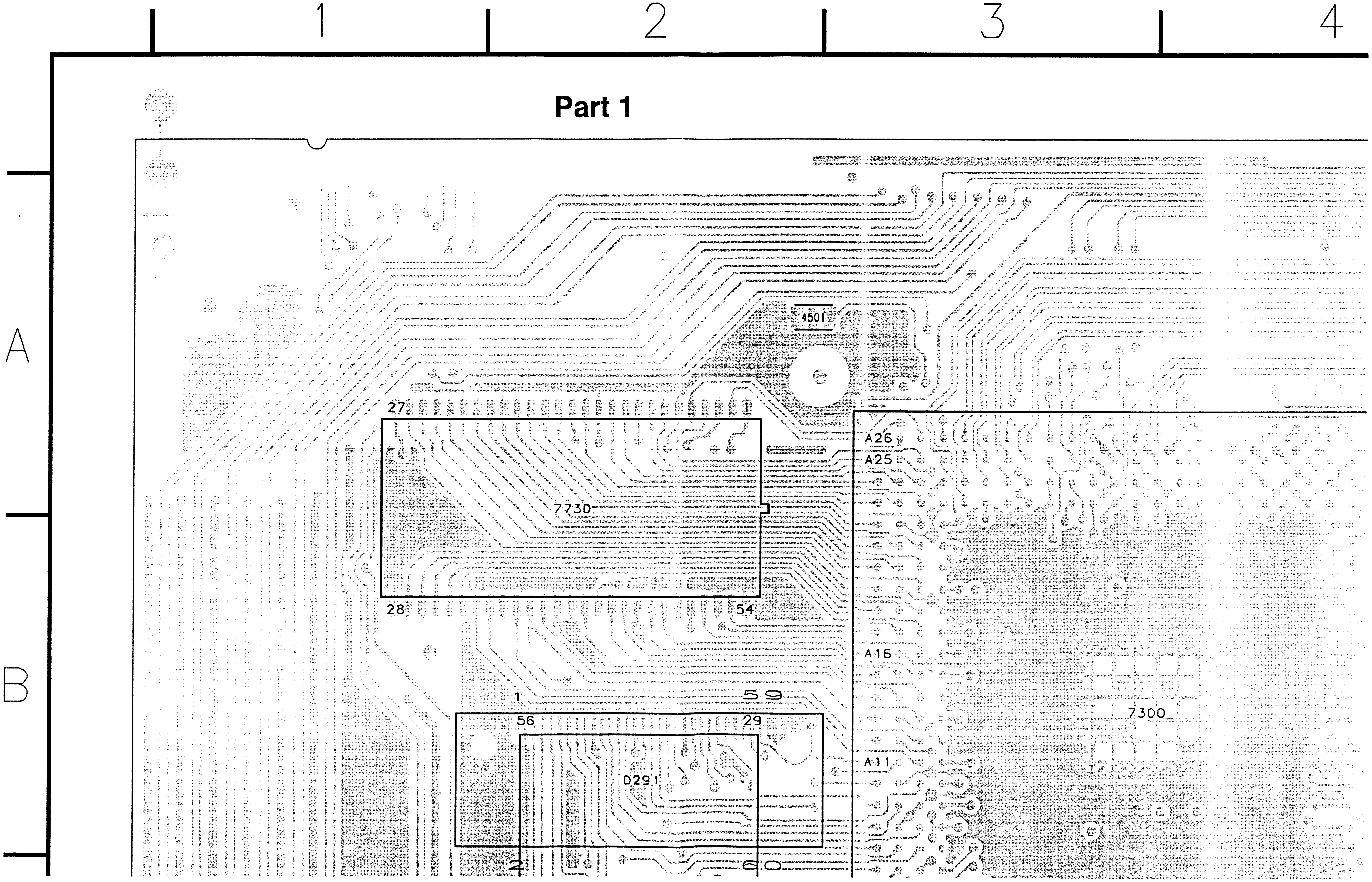


1
2
3
4
5
6
7
A
B
C
D
Part 1
CL 36532058_39a.eps
Part 2
CL 36532058_39b.eps
Part 3
CL 36532058_039c.eps
Part 4
CL 36532058_039d.eps
4501
7730
7300
0291
7790
0290
0201
0202
1112
1114
7100
1115
1117
5129
2003
2037
1941
3139 123 5536.2

CL 36532058_038.eps
030903

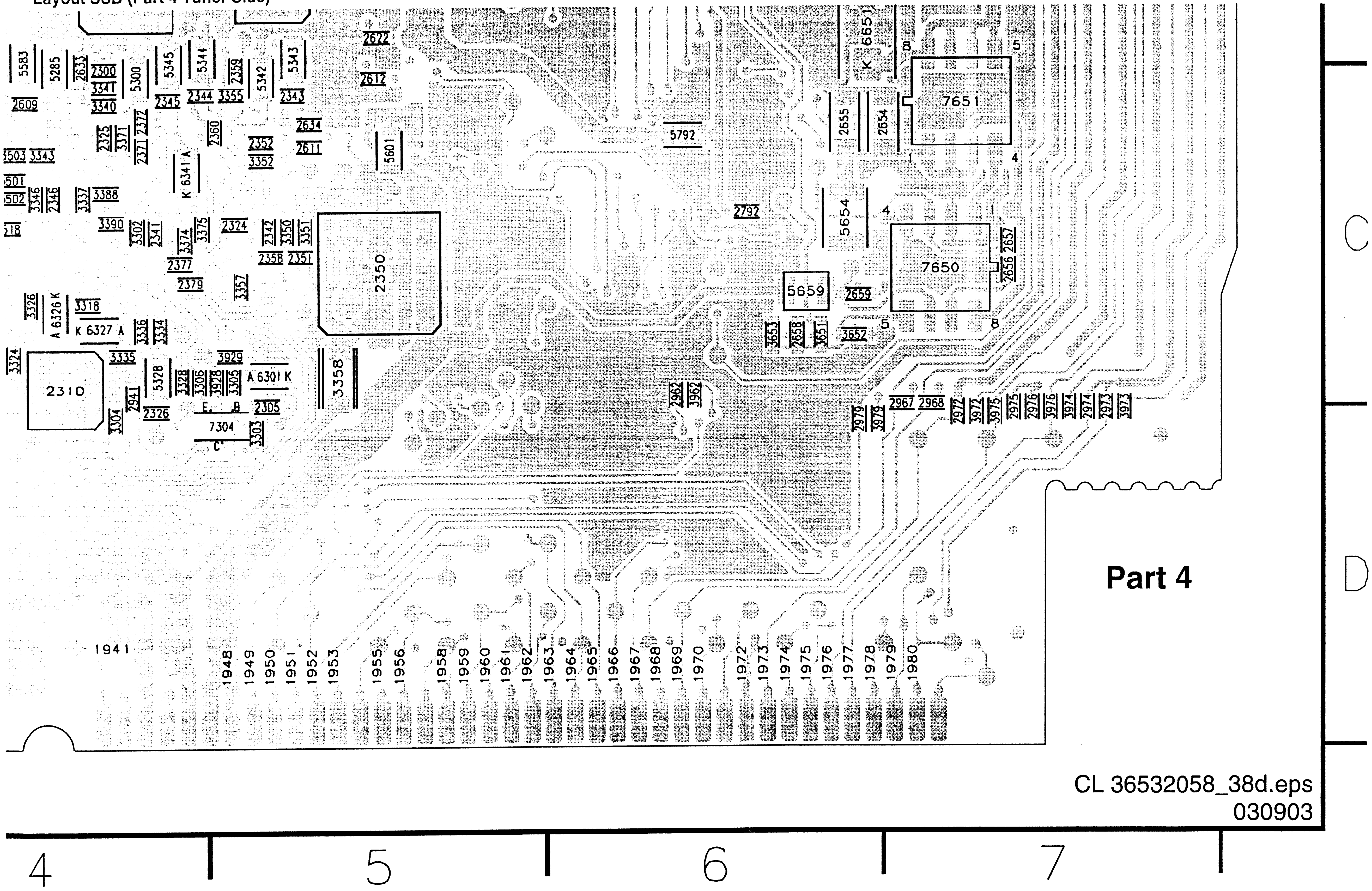
CL 36532058_039.eps
030903

Layout SSB (Part 1 Tuner Side)


1
2
3
4
A
B
Part 1
1501
27
1
7730
28
54
A26
A25
A16
A11
7300
1
59
56
29
D291
2
60

CL 36532058_39a.eps
030903

Layout SSB (Part 4 Tuner Side)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5285
2633
2300
3341
3340
5300
5345
5344
2359
5342
5343
2609
2345
2344
3355
2343
2622
2612
2634
2611
2360
2352
3352
2375
3371
2372
2371
3503
3343
K 6341 A
5601
5792
2655
2654
K 6651
7651
5654
2792
7650
2657
2656
5659
2659
3653
2658
3651
3652
2350
2342
3350
3351
2324
2358
2351
3374
3375
3390
3302
2341
2377
2379
3357
3337
3388
3346
2346
3326
A 6326 K
3318
K 6327 A
3336
3334
3324
2310
3335
5328
3328
3306
3928
3305
3929
A 6301 K
3358
2941
2326
E B
2305
7304
C
3304
3303
2962
3962
2979
3979
2967
2968
2972
3972
3975
2975
2976
3976
3974
2974
2973
3973
1941
1948
1949
1950
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1961
1962
1963
1964
1965
1966
1967
1968
1969
1970
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1973
1974
1975
1976
1977
1978
1979
1980
Part 4
C
D
4
5
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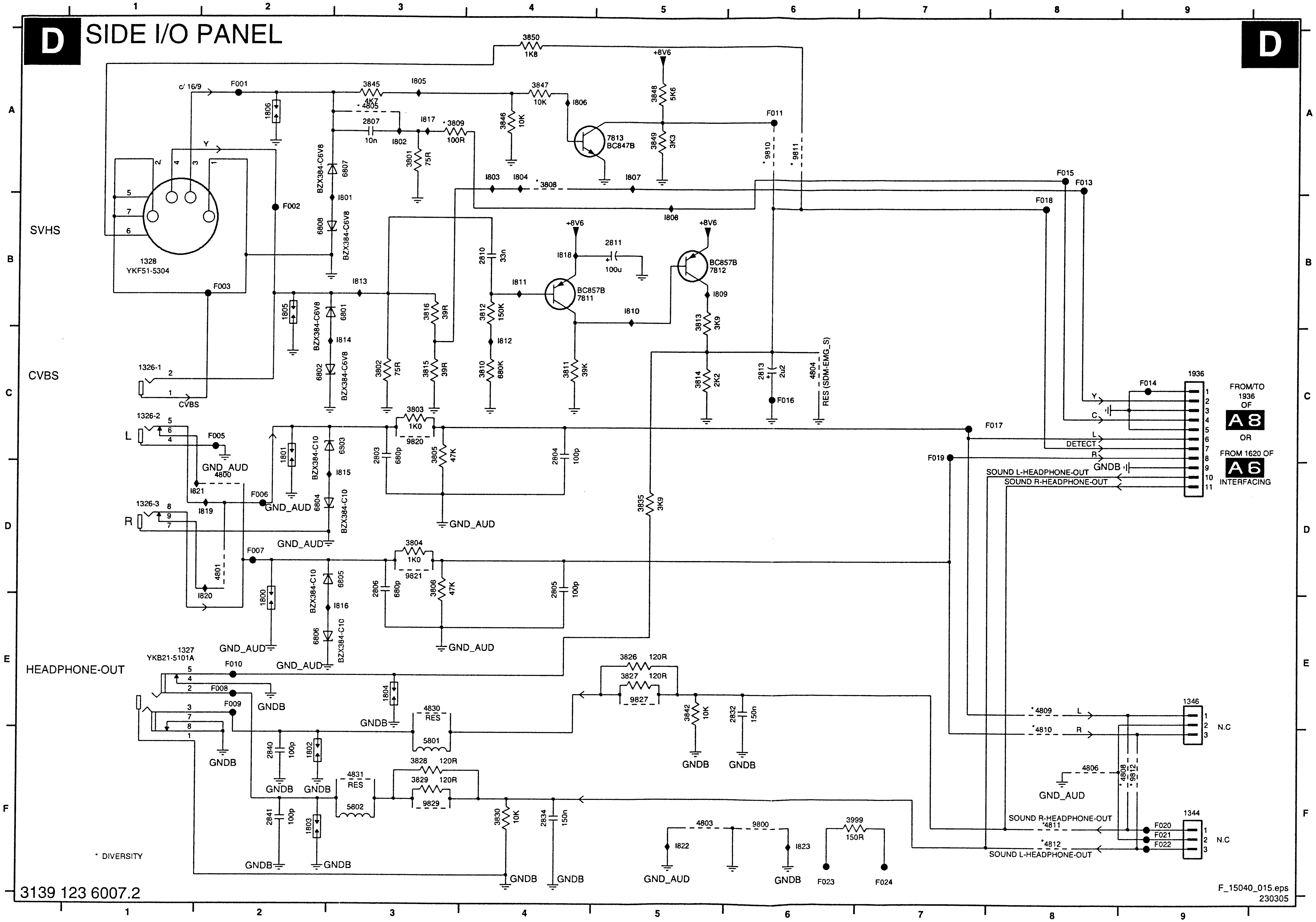
7

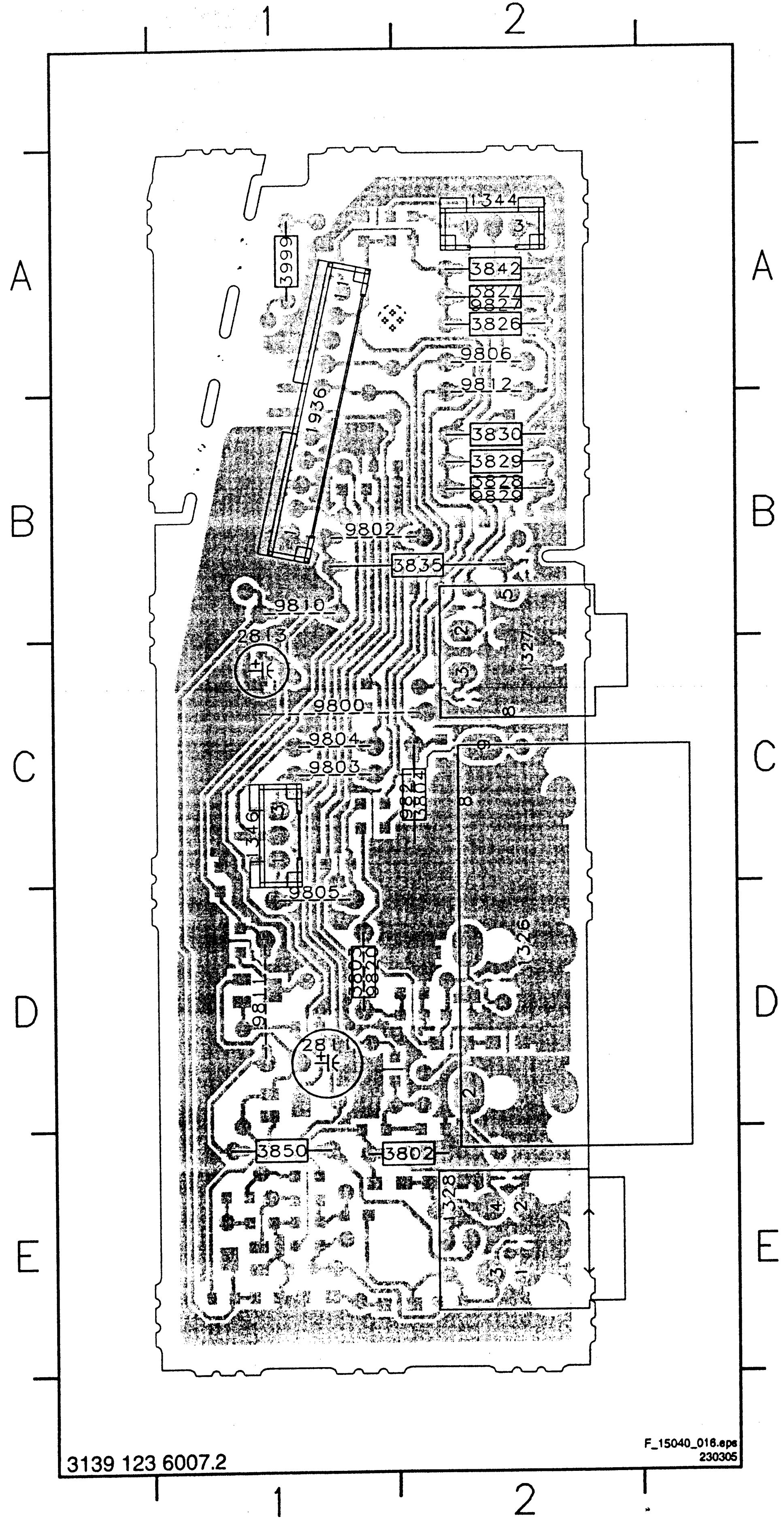
CL 36532058_38d.eps
030903

Side I/O Panel (FL9)


D
SIDE I/O PANEL
D
SVHS
CVBS
HEADPHONE-OUT
1328
YKF51-5304
1326-1
1326-2
1326-3
1327
YKB21-5101A
L
R
CVBS
Y
C
GND_AUD
GNDB
+8V6
7813
BC847B
7811
BC857B
7812
BC857B
BZX384-C6V8
BZX384-C10
RES (SDM-EMG_S)
1936
FROM/TO
1936
OF
A8
OR
FROM 1620 OF
A6
INTERFACING
DETECT
SOUND L-HEADPHONE-OUT
SOUND R-HEADPHONE-OUT
1346
1344
N.C
* DIVERSITY
3139 123 6007.2
F_15040_015.eps
230305

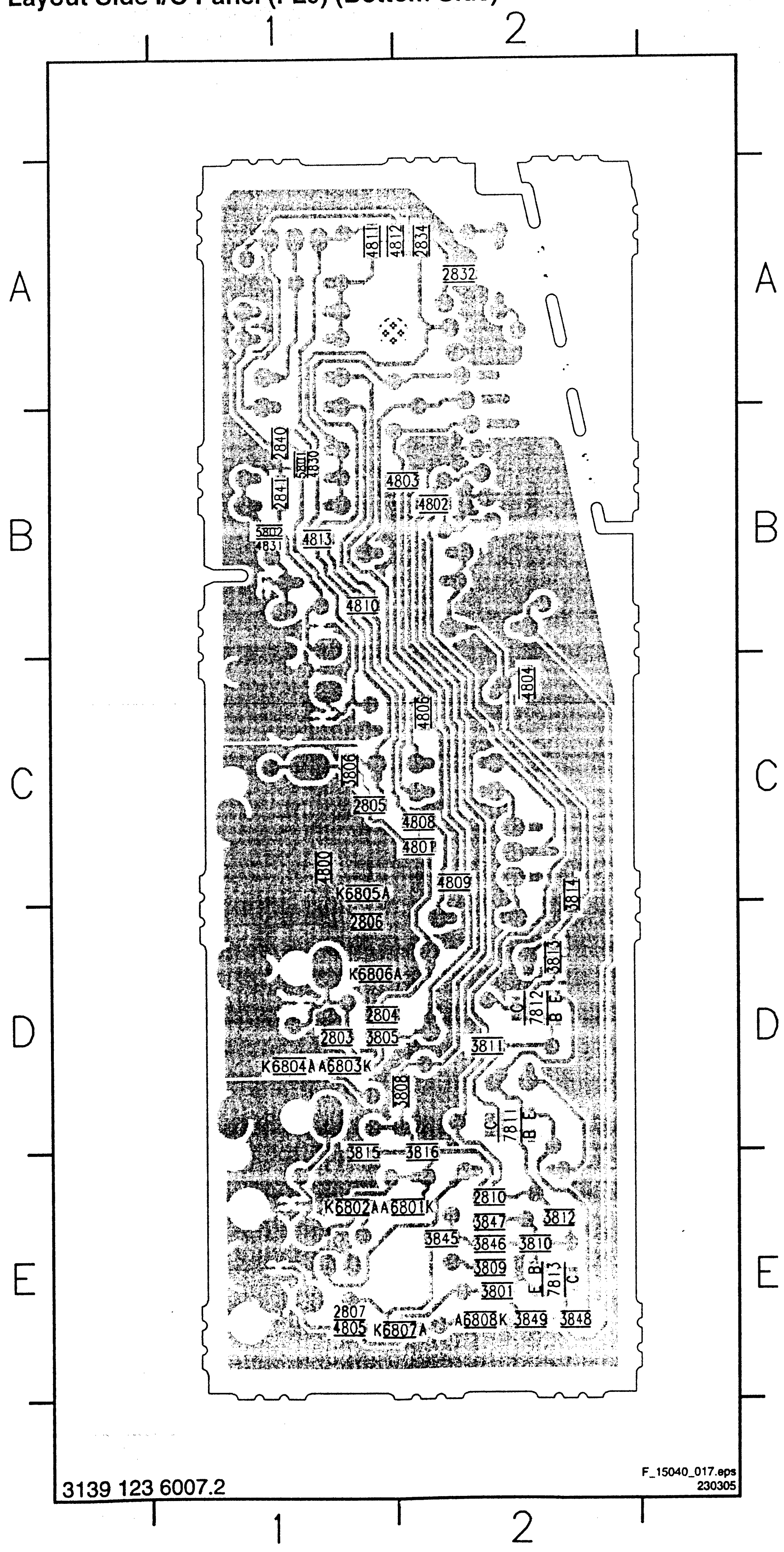
1326-1	C1
1326-2	C1
1326-3	D1
1327	E1
1328	B1
1344	F9
1346	E9
1800	E2
1801	C2
1802	F2
1803	F2
1804	E3
1805	B2
1806	A2
1936	C9
2803	C3
2804	C4
2805	D4
2806	D3
2807	A3
2810	B4
2811	B5
2813	C6
2832	E6
2834	F4
2840	F2
2841	F2
3801	A3
3802	C3
3803	C3
3804	D3
3805	C3
3806	D3
3808	A4
3809	A3
3810	C4
3811	C4
3812	B4
3813	B5
3814	C5
3815	C3
3816	B3
3826	E5
3827	E5
3828	F3
3829	F3
3830	F4
3835	D5
3842	E5
3845	A3
3846	A4
3847	A4
3848	A5
3849	A5
3850	A4
3999	F6
4800	D2
4801	D2
4803	F5
4804	C6
4805	A3
4806	F8
4808	F9
4809	E8
4810	F8
4811	F8
4812	F8
4830	E3
4831	F3
5801	F3
5802	F3
6801	B3
6802	C2
6803	C3
6804	D2
6805	D3
6806	E2
6807	A3
6808	B2
7811	B4
7812	B5
7813	A5
9800	F6
9810	A6
9811	A6
9812	F9
9820	C3
9821	D3
9827	E5
9829	F3
F001	A2
F002	B2
F003	B2
F005	C2
F006	D2
F007	D2
F008	E2
F009	E2
F010	E2
F011	A6
F013	A8
F014	C9
F015	A8
F016	C6
F017	C8
F018	B8
F019	C7
F020	F9
F021	F9
F022	F9
F023	F6
F024	F7
I801	B3
I802	A3
I803	A4
I804	A4
I805	A3
I806	A4
I807	A5
I808	B5
I809	B5
I810	B5
I811	B4
I812	C4
I813	B3
I814	C3
I815	D3
I816	E3
I817	A3
I818	B4
I819	D2
I820	E2
I821	D2
I822	F5
I823	F6

Layout Side I/O Panel (FL9) (Top Side)


1
2
A
B
C
D
E
1344
3999
3842
3827
3826
9806
9812
1936
3830
3829
3828
9802
3835
9810
2813
1327
9800
9804
9803
9821
3804
1346
9805
1326
9820
3803
9811
2811
3850
3802
1328
3139 123 6007.2
F_15040_016.eps
230305

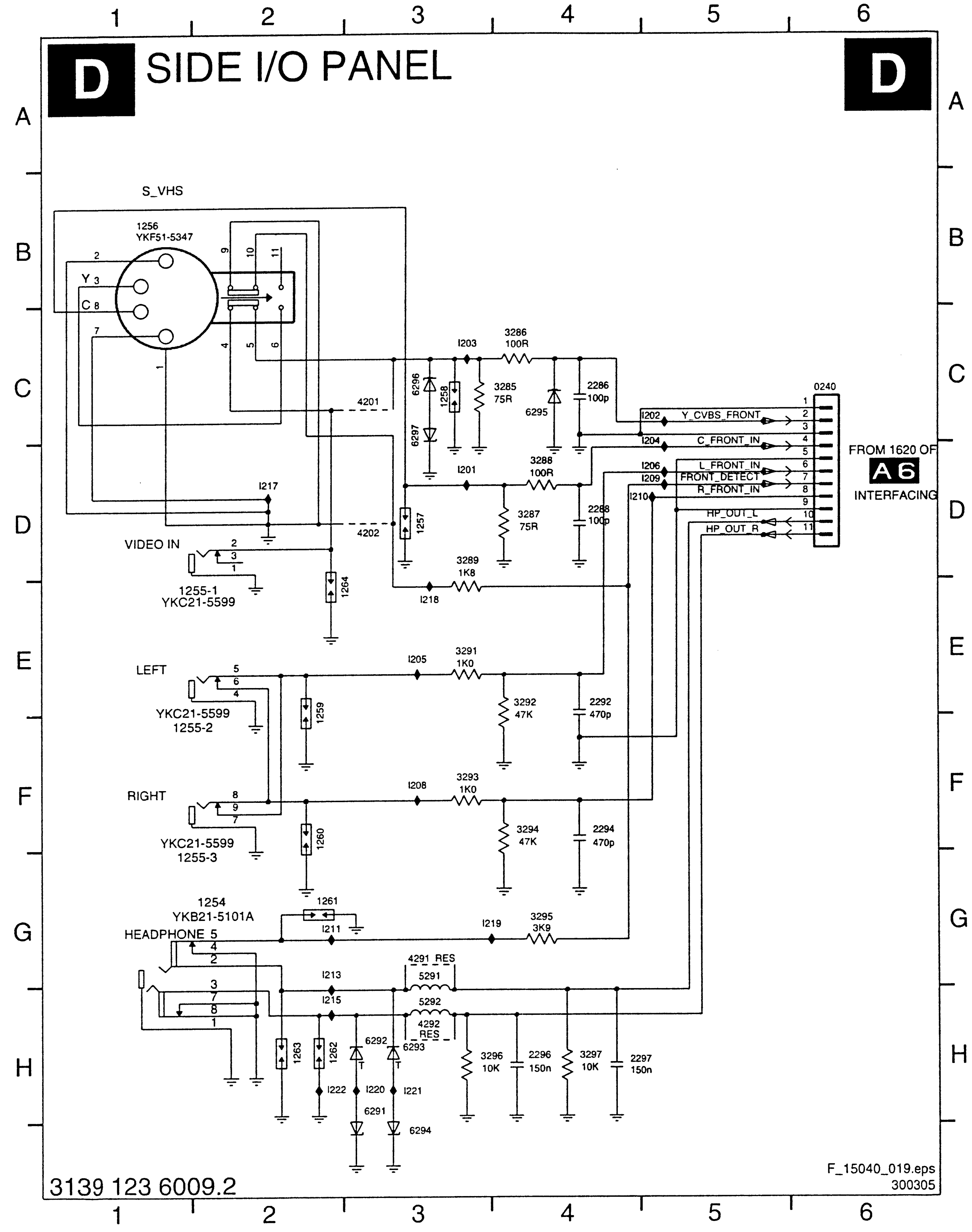
1326	D2
1327	C2
1328	E2
1344	A2
1346	C1
1936	B1
2811	D1
2813	B1
3802	E2
3803	D1
3804	C2
3826	A2
3827	A2
3828	B2
3829	B2
3830	B2
3835	B2
3842	A2
3850	E1
3999	A1
9800	C1
9802	B1
9803	C1
9804	C1
9805	D1
9806	A2
9810	B1
9811	D1
9812	A2
9820	D1
9821	C2
9827	A2
9829	B2

Layout Side I/O Panel (FL9) (Bottom Side)


1
2
A
B
C
D
E
4811
4812
2834
2832
2840
2841
4803
4802
5802
4831
4813
4810
4804
4806
3806
2805
4808
4801
4800
4809
K6805A
2806
3814
3813
K6806A
7812
2804
2803
3805
3811
K6804A
A6803K
3808
7811
3815
3816
2810
K6802A
A6801K
3847
3812
3845
3846
3810
3809
7813
3801
2807
4805
K6807A
A6808K
3849
3848
3139 123 6007.2
F_15040_017.eps
230305

2803	D1
2804	D1
2805	C1
2806	D1
2807	E1
2810	E2
2832	A2
2834	A2
2840	B1
2841	B1
3801	E2
3805	D1
3806	C1
3808	D2
3809	E2
3810	E2
3811	D2
3812	E2
3813	D2
3814	C2
3815	E1
3816	E2
3845	E2
3846	E2
3847	E2
3848	E2
3849	E2
4800	C1
4801	C2
4802	B2
4803	B2
4804	C2
4805	E1
4806	C2
4808	C2
4809	C2
4810	B1
4811	A1
4812	A2
4813	B1
4830	B1
4831	B1
5801	B1
5802	B1
6801	E2
6802	E1
6803	D1
6804	D1
6805	C1
6806	D1
6807	E2
6808	E2
7811	D2
7812	D2
7813	E2

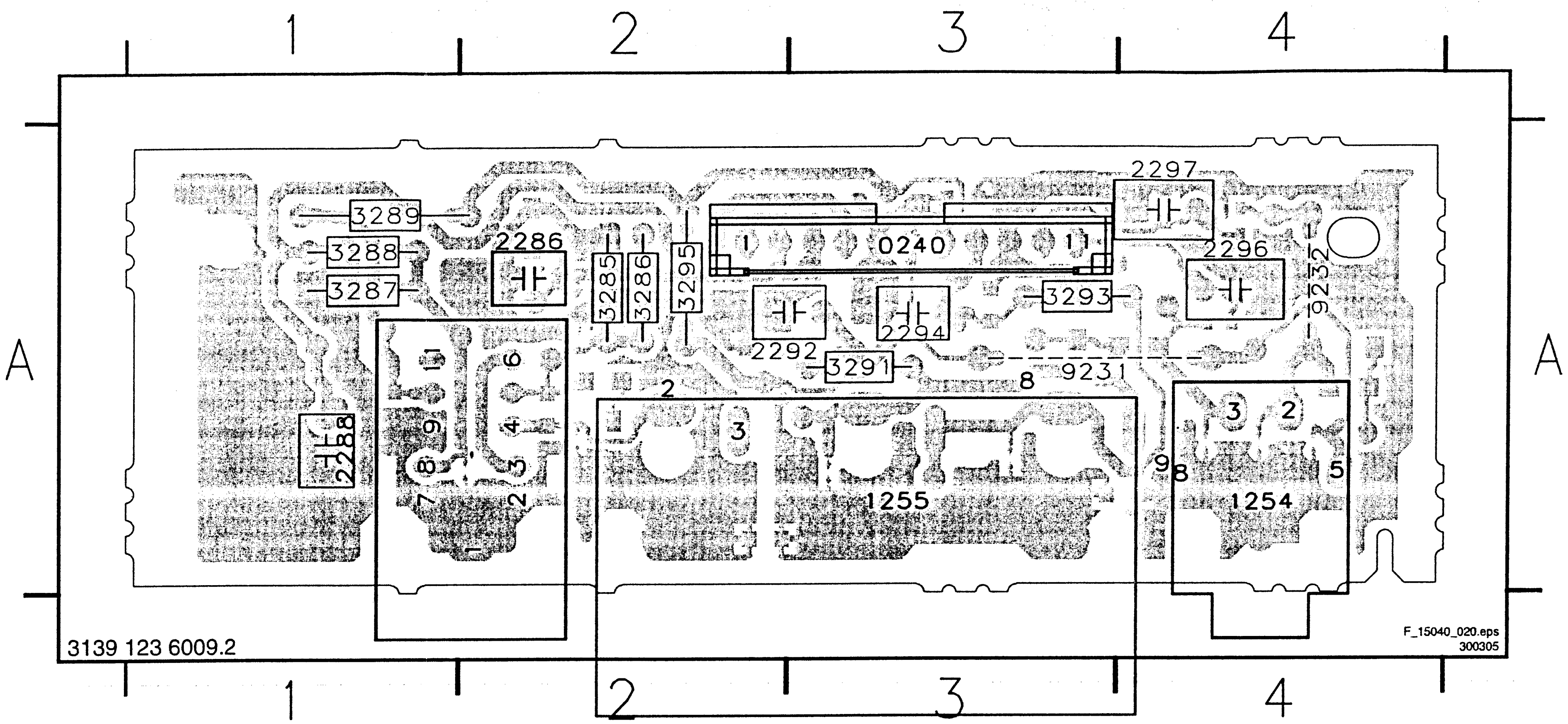
Side I/O Panel (SL5/PV2)


D SIDE I/O PANEL
D
S_VHS
1256
YKF51-5347
Y
C
VIDEO IN
1255-1
YKC21-5599
LEFT
YKC21-5599
1255-2
RIGHT
YKC21-5599
1255-3
1254
YKB21-5101A
HEADPHONE
3286
100R
3285
75R
2286
100p
6295
6296
6297
1258
3288
100R
3287
75R
2288
100p
1257
3289
1K8
1264
4201
4202
I217
I203
I201
I218
3291
1K0
3292
47K
2292
470p
1259
I205
3293
1K0
3294
47K
2294
470p
1260
I208
1261
I211
I219
3295
3K9
4291 RES
5291
5292
4292 RES
I213
I215
6292
6293
1263
1262
I222
I220
I221
6291
6294
3296
10K
2296
150n
3297
10K
2297
150n
0240
I202 Y_CVBS_FRONT
I204 C_FRONT_IN
I206 L_FRONT_IN
I209 FRONT_DETECT
R_FRONT_IN
I210
HP_OUT_L
HP_OUT_R
FROM 1620 OF
A6
INTERFACING
3139 123 6009.2
F_15040_019.eps
300305

Personal Notes:

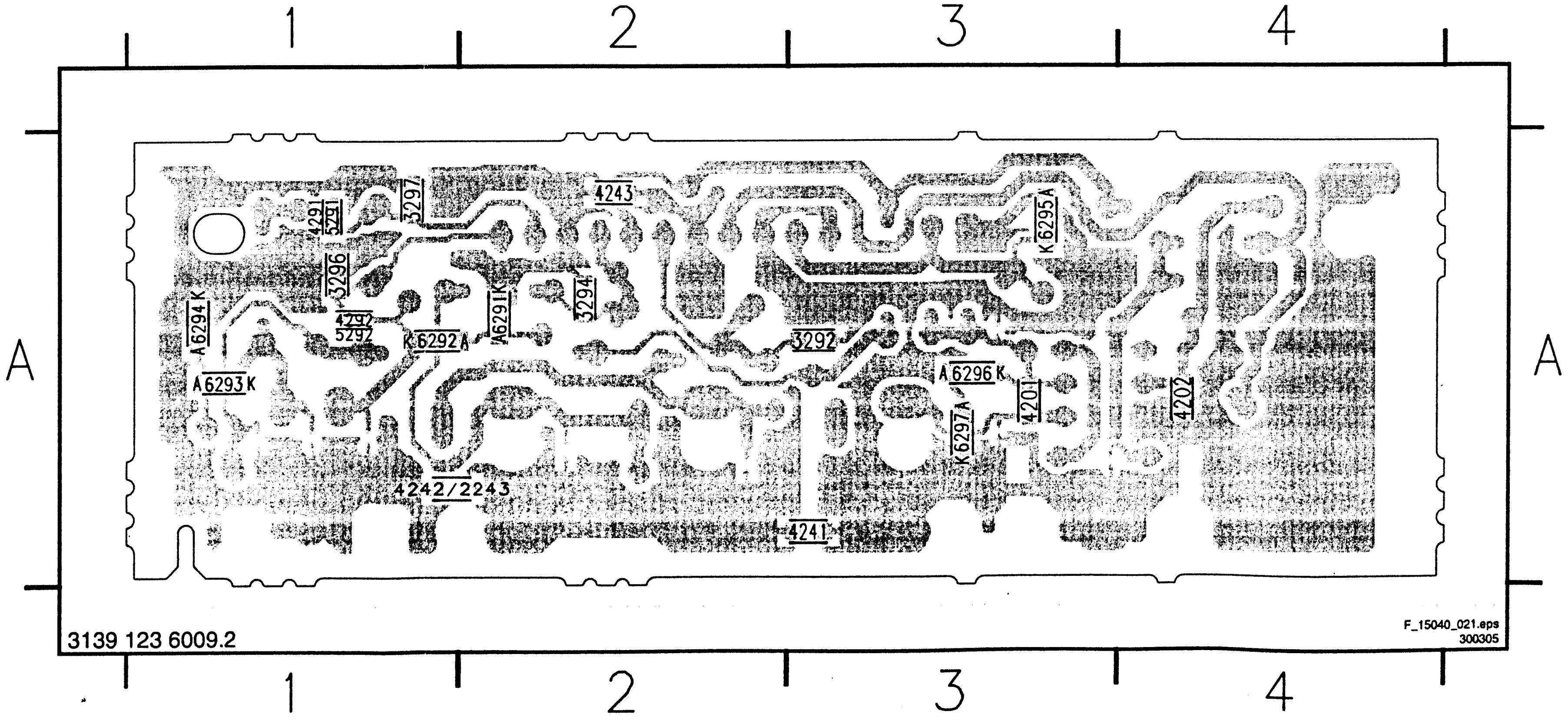
Layout Side I/O Panel (SL5/PV2) (Top Side)

0240	A3
1254	A4
1255	A3
1256	A2
2286	A2
2288	A1
2292	A2
2294	A3
2296	A4
2297	A4
3285	A2
3286	A2
3287	A1
3288	A1
3289	A1
3291	A3
3293	A3
3295	A2
9231	A3
9232	A4


1
2
3
4
A
A
3289
3288
3287
2286
3285
3286
3295
0240
2297
2296
9232
3293
2292
2294
3291
9231
2288
1255
1254
3139 123 6009.2
F_15040_020.eps
300305

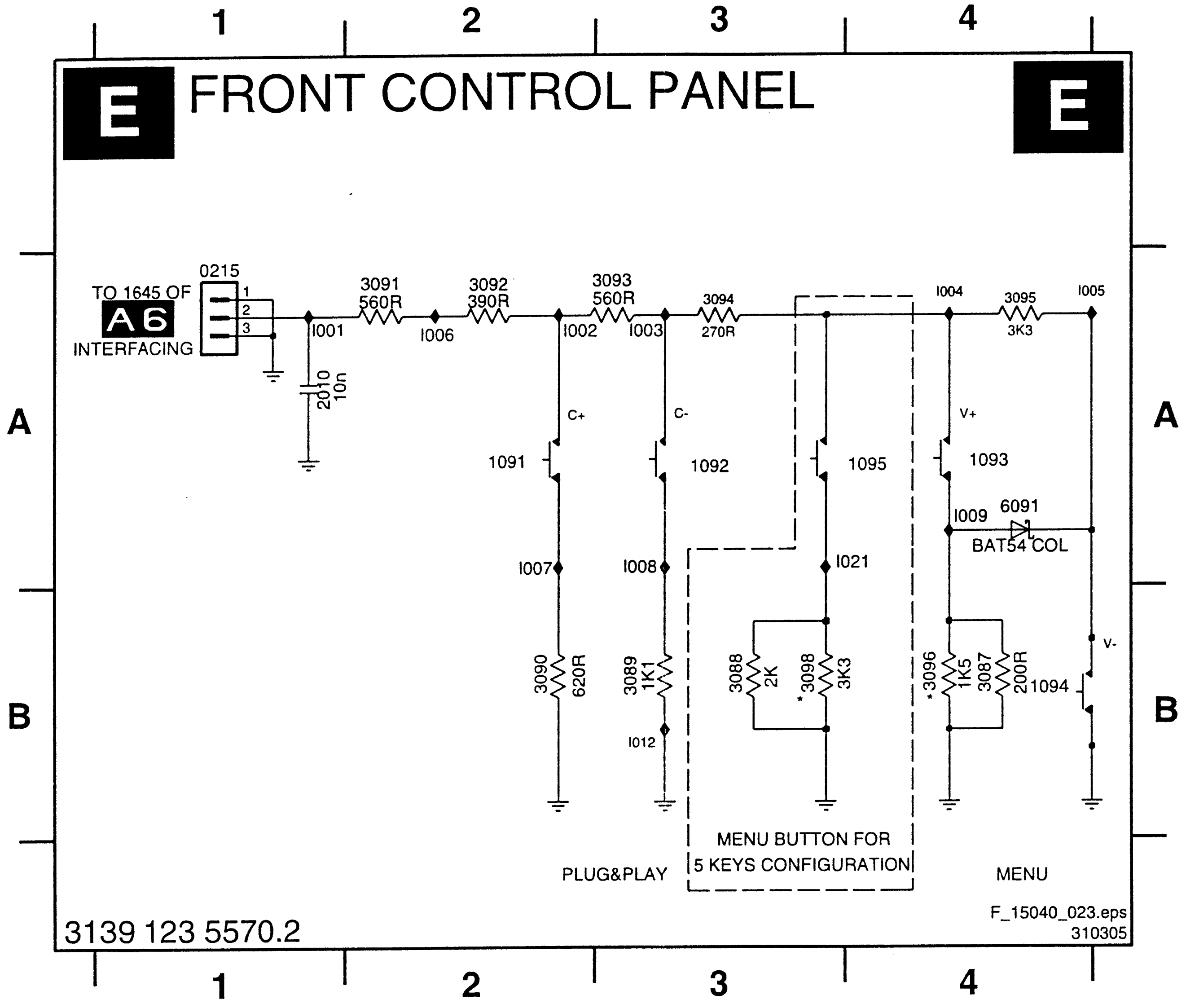
Layout Side I/O Panel (SL5/PV2) (Bottom Side)

3292	A3
3294	A2
3296	A1
3297	A1
4201	A3
4202	A4
4241	A3
4242/2243	A1
4243	A2
4291	A1
4292	A1
5291	A1
5292	A1
6291	A2
6292	A1
6293	A1
6294	A1
6295	A3
6296	A3
6297	A3


1
2
3
4
A
A
4291
5291
3297
4243
3296
4292
5292
6292
6291
3294
6294
6293
3292
6295
6296
6297
4201
4202
4242/2243
4241
3139 123 6009.2
F_15040_021.eps
300305

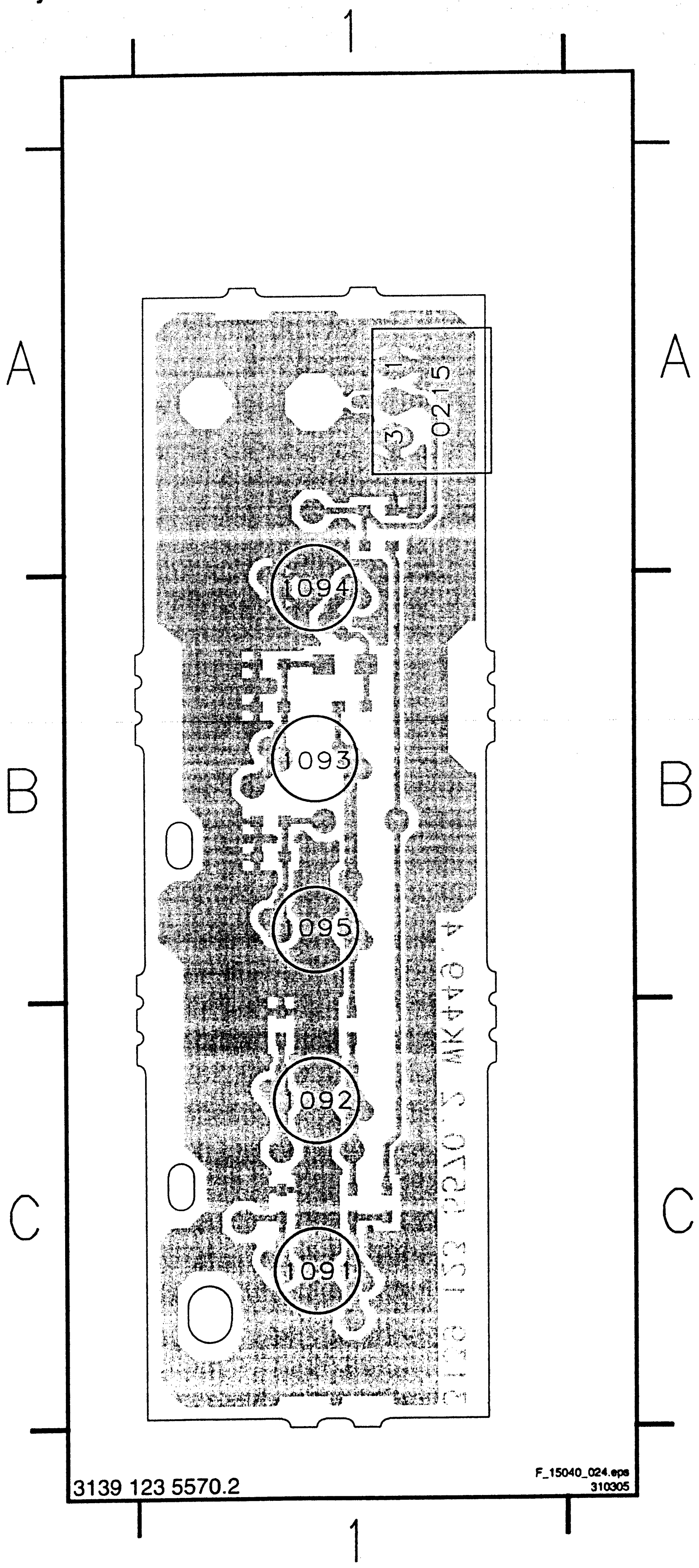
Front Control Panel

0215 A1	1093 A4	2010 A1	3089 B3	3092 A2	3095 A4	6091 A4	I003 A3	I006 A2	I009 A4
1091 A2	1094 B4	3087 B4	3090 B2	3093 A3	3096 B4	I001 A1	I004 A4	I007 A2	I012 B3
1092 A3	1095 A4	3088 B3	3091 A2	3094 A3	3098 B3	I002 A2	I005 A4	I008 A3	I021 A4


1
2
3
4
E
FRONT CONTROL PANEL
E
A
B
A
B
0215
TO 1645 OF
A6
INTERFACING
1
2
3
I001
2010
10n
3091
560R
I006
3092
390R
3093
560R
I002
I003
3094
270R
I004
3095
3K3
I005
C+
1091
C-
1092
1095
V+
1093
I009
6091
BAT54 COL
I007
I008
I021
3090
620R
3089
1K1
I012
3088
2K
*3098
3K3
*3096
1K5
3087
200R
1094
V-
PLUG&PLAY
MENU BUTTON FOR
5 KEYS CONFIGURATION
MENU
3139 123 5570.2
F_15040_023.eps
310305
1
2
3
4

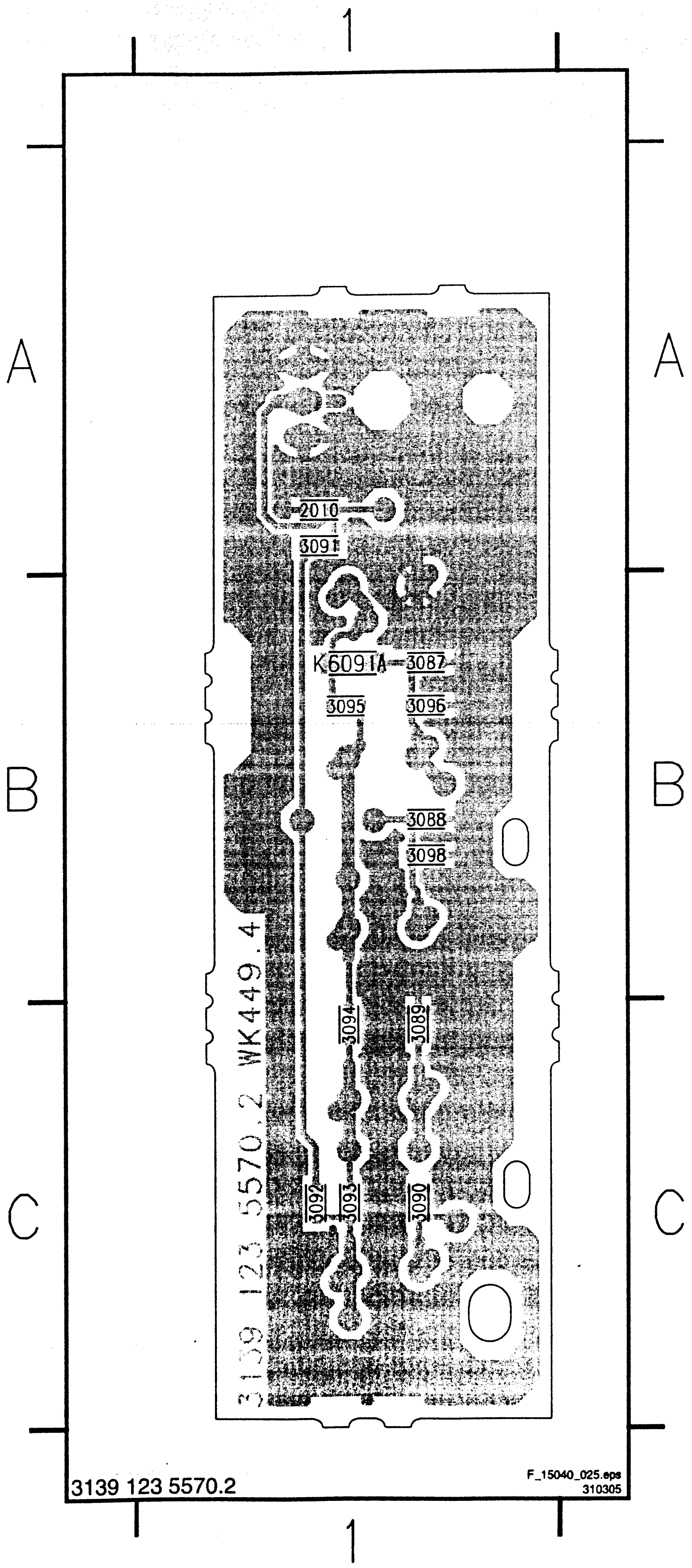
Personal Notes:

Layout Front Control Panel (Top Side)


1
A
B
C
0215
1094
1093
1095
1092
1091
3139 123 5570.2 WK449.4
3139 123 5570.2
F_15040_024.eps
310305

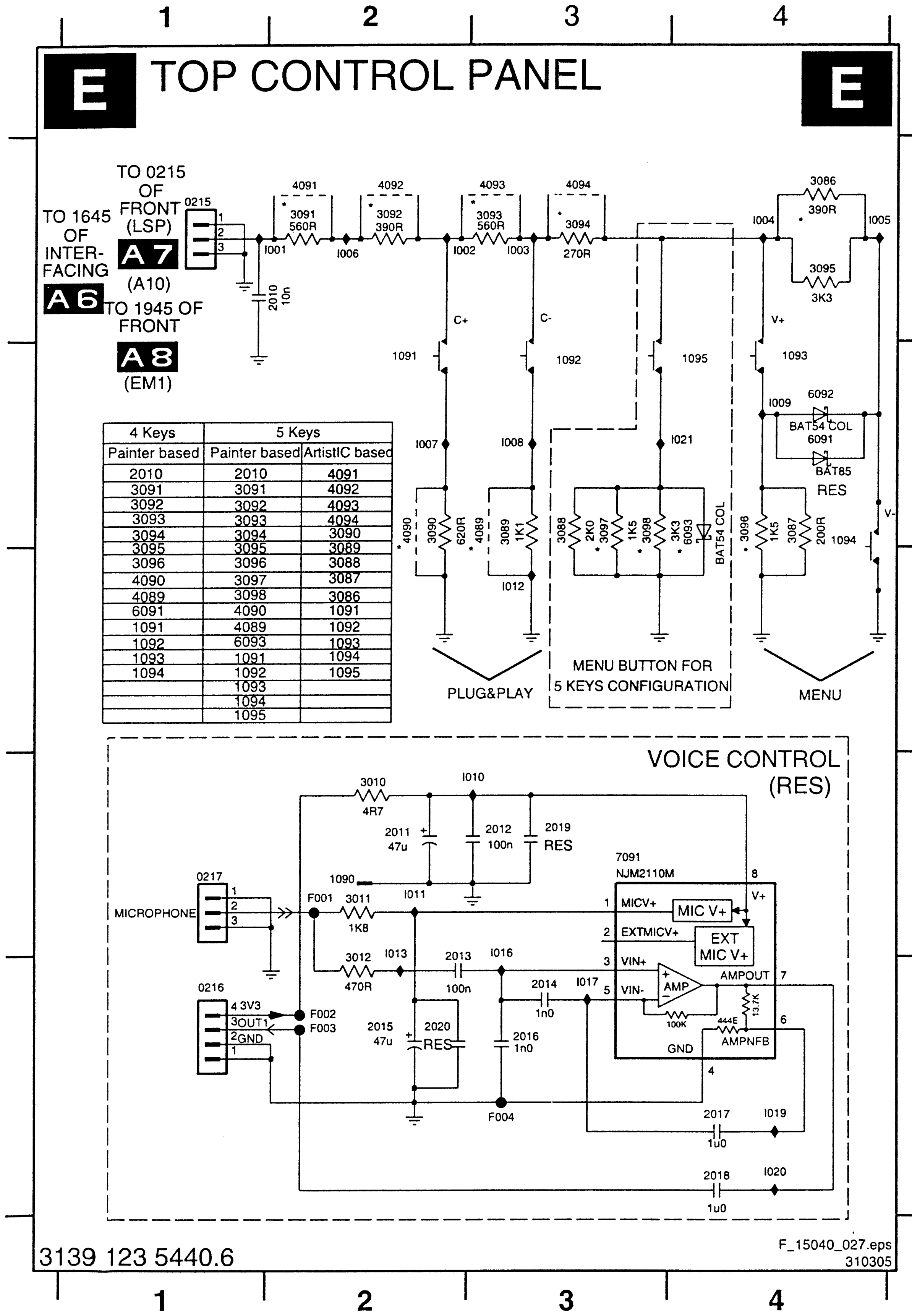
0215	A1
1091	C1
1092	C1
1093	B1
1094	B1
1095	B1

Layout Front Control Panel (Bottom Side)


1
A
B
C
2010
3091
K 6091 A
3087
3095
3096
3088
3098
3094
3089
3092
3093
3090
3139 123 5570.2 WK449.4
3139 123 5570.2
F_15040_025.eps
310305

2010	A1
3087	B1
3088	B1
3089	C1
3090	C1
3091	A1
3092	C1
3093	C1
3094	C1
3095	B1
3096	B1
3098	B1
6091	B1

Top Control Panel (PV2)

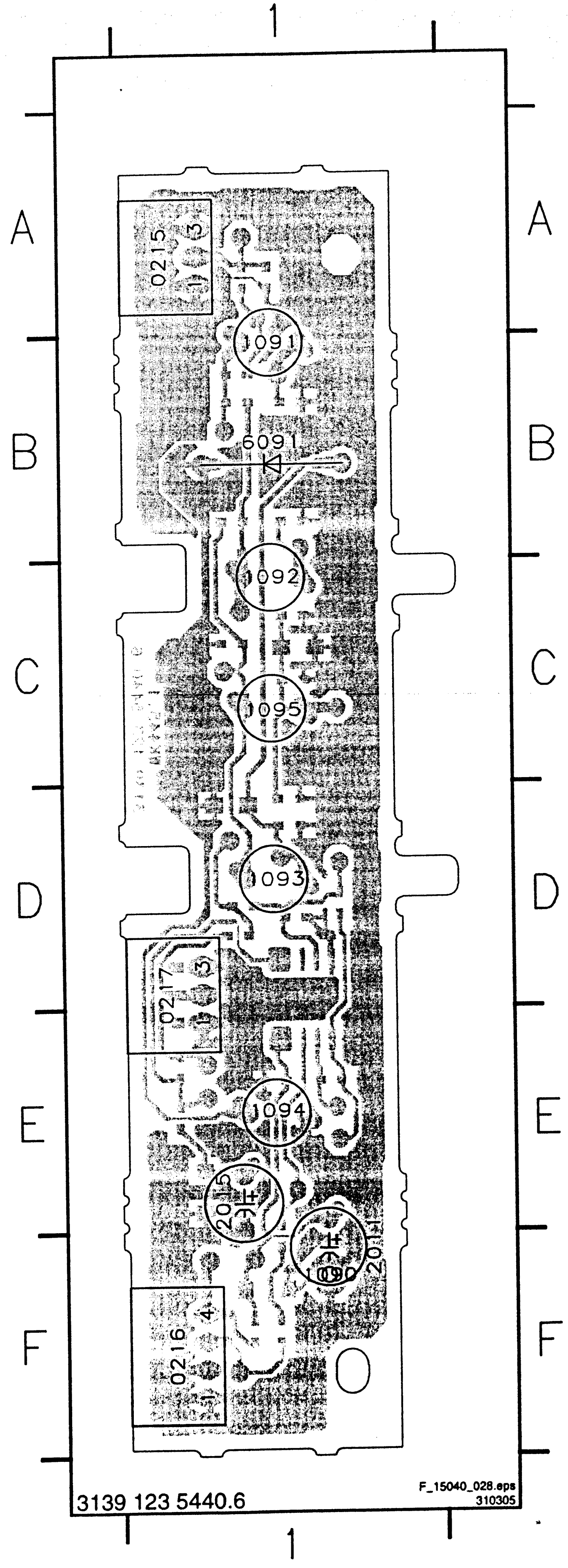

1
2
3
4
E
TOP CONTROL PANEL
E
TO 0215 OF FRONT (LSP)
0215
TO 1645 OF INTER-FACING
A7
(A10)
A6
TO 1945 OF FRONT
A8
(EM1)
4091
3091 560R
4092
3092 390R
4093
3093 560R
4094
3094 270R
I001
I006
I002
I003
2010 10n
C+
C-
1091
1092
1095
1093
3086 390R
3095 3K3
I004
I005
V+
I009
6092
BAT54 COL
6091
BAT85
RES
I007
I008
I021
4090
3090 620R
4089
3089 1K1
I012
3088 2K0
3097 1K5
3098 3K3
6093 BAT54 COL
3096 1K5
3087 200R
V-
1094
PLUG&PLAY
MENU BUTTON FOR 5 KEYS CONFIGURATION
MENU
A
B
C
D
E
VOICE CONTROL (RES)
3010 4R7
I010
2011 47u
2012 100n
2019 RES
1090
0217
MICROPHONE
F001
3011 1K8
I011
7091 NJM2110M
MICV+
MIC V+
EXTMICV+
EXT MIC V+
VIN+
VIN-
AMP
AMPOUT
AMPNFB
GND
V+
100K
444E
13.7K
3012 470R
I013
2013 100n
I016
2014 1n0
I017
2016 1n0
0216
4 3V3
3 OUT1
2 GND
F002
F003
2015 47u
2020 RES
F004
2017 1u0
I019
2018 1u0
I020
3139 123 5440.6
F_15040_027.eps 310305

4 Keys	5 Keys	
Painter based	Painter based	ArtistIC based
2010	2010	4091
3091	3091	4092
3092	3092	4093
3093	3093	4094
3094	3094	3090
3095	3095	3089
3096	3096	3088
4090	3097	3087
4089	3098	3086
6091	4090	1091
1091	4089	1092
1092	6093	1093
1093	1091	1094
1094	1092	1095
	1093	
	1094	
	1095	

0215	A1
0216	E1
0217	D1
1090	D2
1091	B2
1092	B3
1093	B4
1094	B4
1095	B4
2010	A2
2011	D2
2012	D3
2013	E2
2014	E3
2015	E2
2016	E3
2017	E4
2018	E4
2019	D3
2020	E2
3010	D2
3011	D2
3012	E2
3086	A4
3087	B4
3088	B3
3089	B3
3090	B2
3091	A2
3092	A2
3093	A3
3094	A3
3095	A4
3096	B4
3097	B3
3098	B3
4089	B3
4090	B2
4091	A2
4092	A2
4093	A3
4094	A3
6091	B4
6092	B4
6093	B4
7091	D3
F001	D2
F002	E2
F003	E2
F004	E3
I001	A2
I002	A2
I003	A3
I004	A4
I005	A4
I006	A2
I007	B2
I008	B3
I009	B4
I010	D3
I011	D2
I012	C3
I013	D2
I016	D3
I017	E3
I019	E4
I020	E4
I021	B4

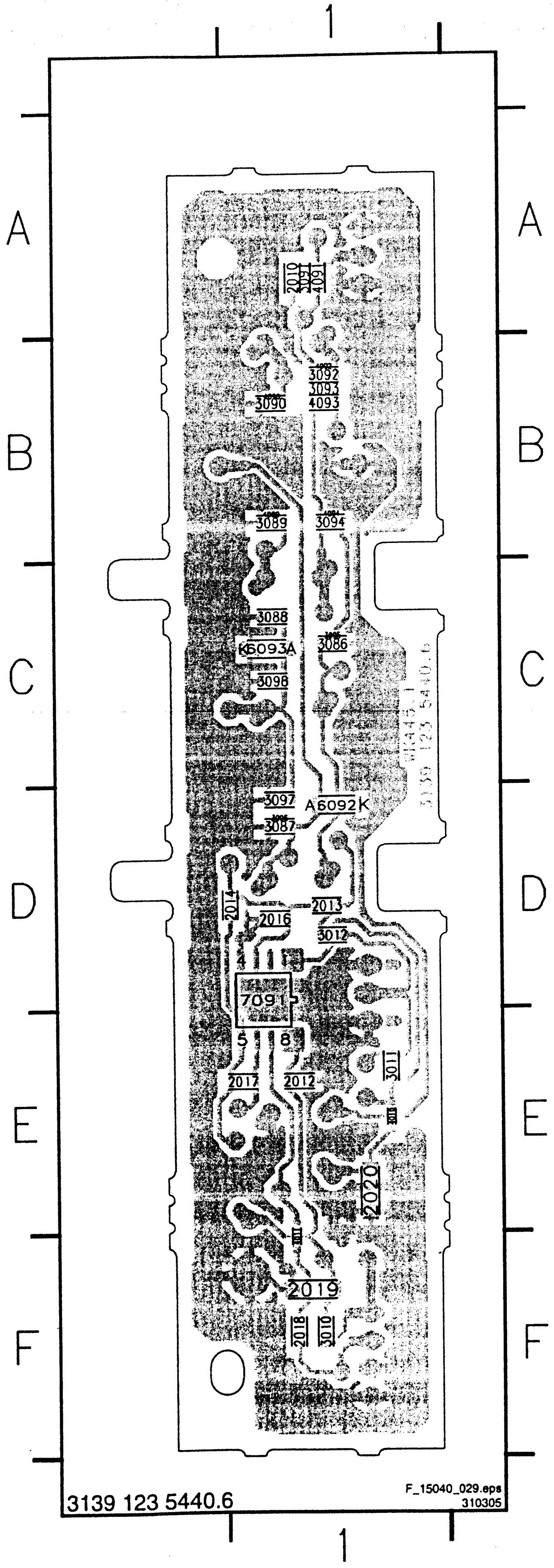
Personal Notes:

Layout Top Control Panel (PV2) (Top Side)


1
A
B
C
D
E
F
0215
1091
6091
1092
1095
1093
0217
1094
2015
2011
1090
0216
3139 123 5440.6
F_15040_028.eps
310305

0215	A1
0216	F1
0217	D1
1090	F1
1091	B1
1092	C1
1093	D1
1094	E1
1095	C1
2011	F1
2015	E1
6091	B1

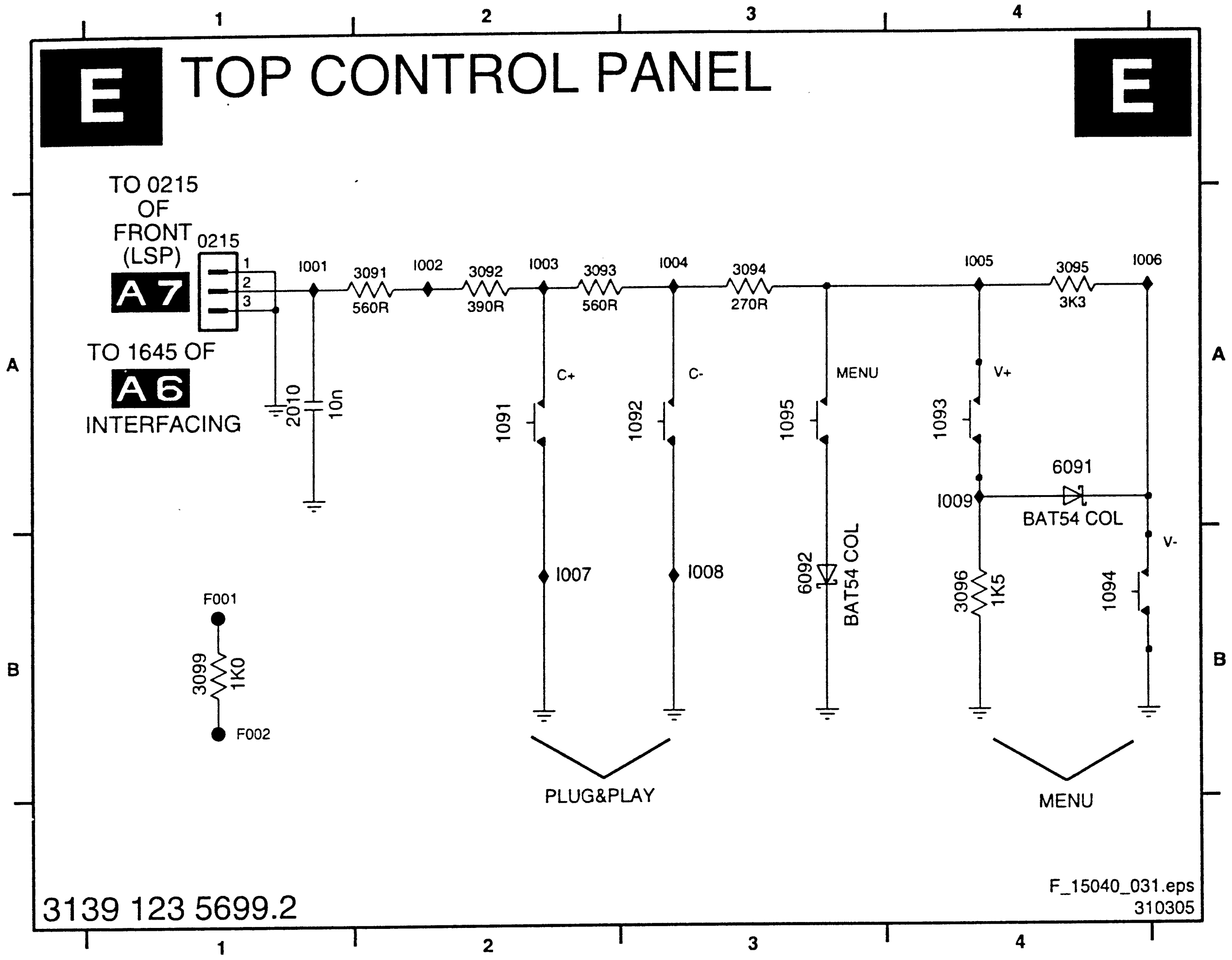
Layout Top Control Panel (PV2) (Bottom Side)


1
A
B
C
D
E
F
2010
3091
4091
3092
3093
4093
3090
3089
3094
3088
6093A
3086
3098
3097
A6092K
3087
2014
2016
2013
3012
7091
5
8
2017
2012
3011
2020
2019
2018
3010
3139 123 5440.6
F_15040_029.eps
310305

2010	A1
2012	E1
2013	D1
2014	D1
2016	D1
2017	E1
2018	F1
2019	F1
2020	E1
3010	F1
3011	E1
3012	D1
3086	C1
3087	D1
3088	C1
3089	B1
3090	B1
3091	A1
3092	B1
3093	B1
3094	B1
3095	C1
3096	D1
3097	D1
3098	C1
4010	E1
4011	F1
4089	B1
4090	B1
4091	A1
4092	B1
4093	B1
4094	B1
6092	D1
6093	C1
7091	D1

Top Control Panel (FL9)

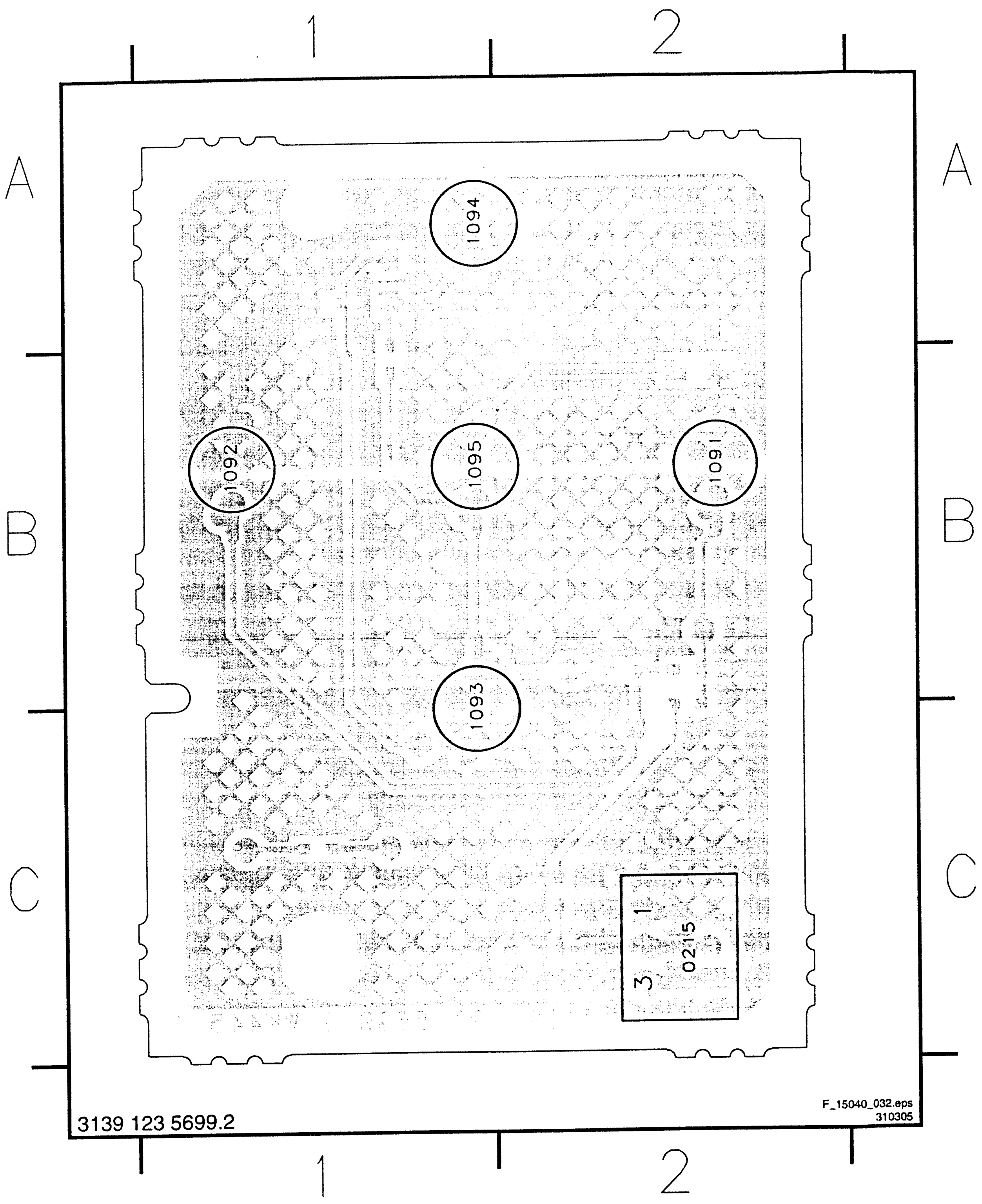
0215	A1
1091	A2
1092	A3
1093	A4
1094	B4
1095	A3
2010	A1
3091	A2
3092	A2
3093	A2
3094	A3
3095	A4
3096	B4
3099	B1
6091	A4
6092	B3
F001	B1
F002	B1
I001	A1
I002	A2
I003	A2
I004	A3
I005	A4
I006	A4
I007	B2
I008	B3
I009	A4


E
TOP CONTROL PANEL
E
TO 0215 OF FRONT (LSP)
A7
0215
TO 1645 OF
A6
INTERFACING
I001
3091 560R
I002
3092 390R
I003
3093 560R
I004
3094 270R
I005
3095 3K3
I006
2010 10n
C+
C-
MENU
V+
V-
1091
1092
1095
1093
1094
6091 BAT54 COL
I009
6092 BAT54 COL
3096 1K5
I007
I008
F001
3099 1K0
F002
PLUG&PLAY
MENU
3139 123 5699.2
F_15040_031.eps 310305
1
2
3
4
A
B

Personal Notes:

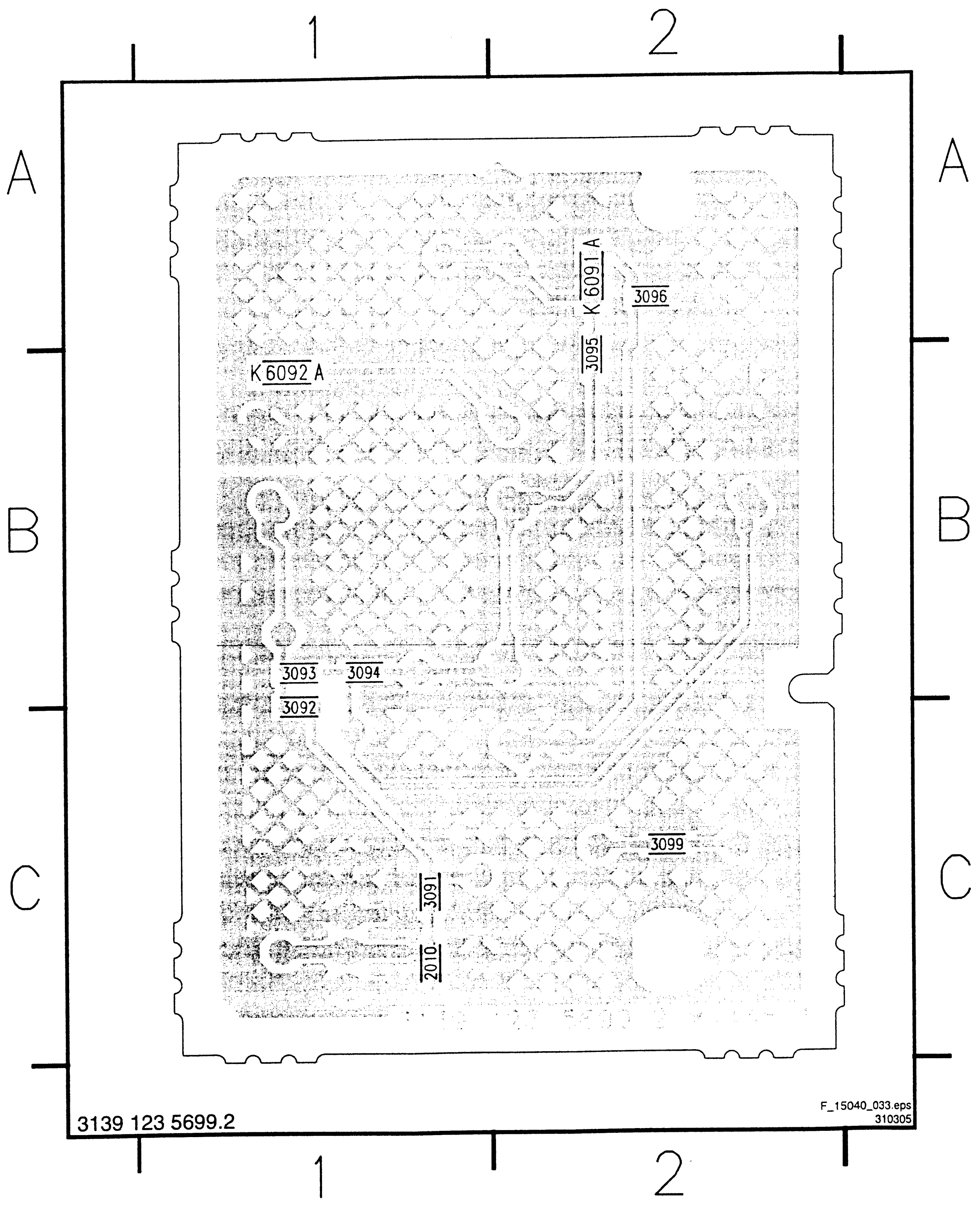
Layout Top Control Panel (FL9) (Top Side)

0215	C2
1091	B2
1092	B1
1093	C1
1094	A1
1095	B1

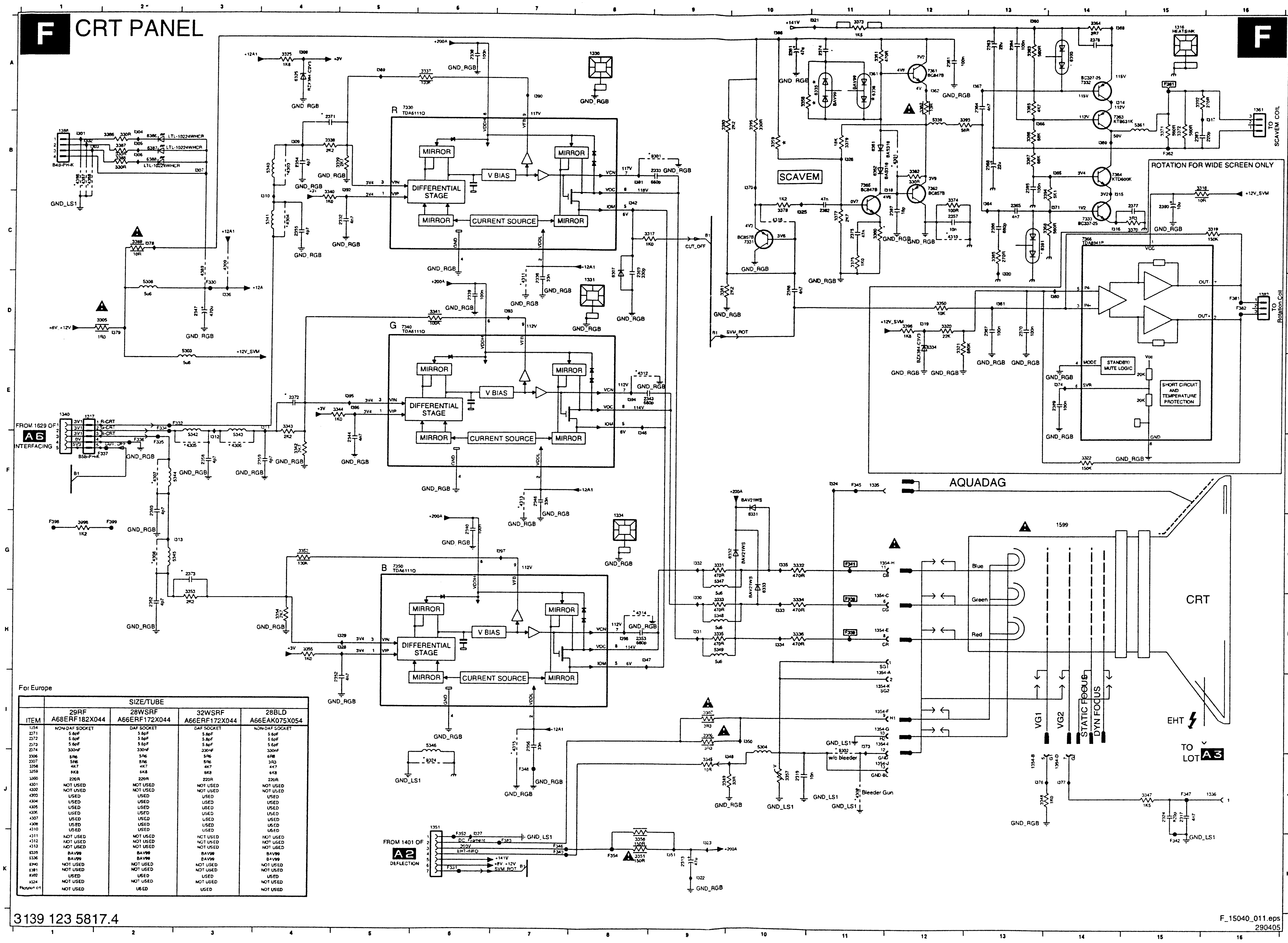

1
2
A
B
C
1094
1092
1095
1091
1093
3
1
0215
3139 123 5699.2
F_15040_032.eps
310305

Layout Top Control Panel (FL9) (Bottom Side)

2010	C1
3091	C1
3092	C1
3093	B1
3094	B1
3095	B2
3096	A2
3099	C2
6091	A2
6092	B1


1
2
A
B
C
K 6091 A
3096
3095
K 6092 A
3093
3094
3092
3099
3091
2010
3139 123 5699.2
F_15040_033.eps
310305

CRT Panel


F
CRT PANEL
R 7330 TDA6111Q
G 7340 TDA6111Q
B 7350 TDA6111Q
MIRROR
DIFFERENTIAL STAGE
V BIAS
CURRENT SOURCE
VIN
VIP
VOC
IOM
VCN
VDDH
VDDL
VFB
GND
SCAVEM
ROTATION FOR WIDE SCREEN ONLY
7366 TDA8941P
STANDBY/ MUTE LOGIC
SHORT CIRCUIT AND TEMPERATURE PROTECTION
TO SCAVEM COIL
TO Rotation Coil
1316 HEATSINK
AQUADAG
1599
CRT
Blue
Green
Red
VG1
VG2
STATIC FOCUS
DYN FOCUS
EHT
TO LOT A3
FROM 1629 OF A6 INTERFACING
FROM 1401 OF A2 DEFLECTION
DC_Filament
EHT-INFO
SVM_ROT
CUT_OFF
GND_RGB
GND_LS1
+200A
+12A1
+12V_SVM
w/o bleeder
Bleeder Gun
LTL-10224WHCR
BC857B
BC847B
BC337-25
BC327-25
KTB631K
KTD600K
BAV99
BAV21WS
BZX384-C3V3
BZX384-C2V7

For Europe

	SIZE/TUBE			
ITEM	29RF A68ERF182X044	28WSRF A66ERF172X044	32WSRF A66ERF172X044	28BLD A66EAK075X054
1354	NON-DAF SOCKET	DAF SOCKET	DAF SOCKET	NON-DAF SOCKET
2371	5.6pF	5.6pF	5.6pF	5.6pF
2372	5.6pF	5.6pF	5.6pF	5.6pF
2373	5.6pF	5.6pF	5.6pF	5.6pF
2374	330nF	330nF	330nF	330nF
3306	5R6	5R6	5R6	6R8
3307	5R6	5R6	5R6	3R3
3358	4K7	4K7	4K7	4K7
3359	6K8	6K8	6K8	6K8
3360	220R	220R	220R	220R
4301	NOT USED	NOT USED	NOT USED	NOT USED
4302	NOT USED	NOT USED	NOT USED	NOT USED
4303	USED	USED	USED	USED
4304	USED	USED	USED	USED
4305	USED	USED	USED	USED
4306	USED	USED	USED	USED
4307	USED	USED	USED	USED
4308	USED	USED	USED	USED
4310	USED	USED	USED	USED
4311	NOT USED	NOT USED	NOT USED	NOT USED
4312	NOT USED	NOT USED	NOT USED	NOT USED
4313	NOT USED	NOT USED	NOT USED	NOT USED
6335	BAV99	BAV99	BAV99	BAV99
6336	BAV99	BAV99	BAV99	BAV99
6390	NOT USED	NOT USED	NOT USED	NOT USED
6391	NOT USED	NOT USED	NOT USED	NOT USED
9302	USED	USED	USED	USED
9324	NOT USED	NOT USED	NOT USED	NOT USED
Rotation crt	NOT USED	USED	USED	NOT USED

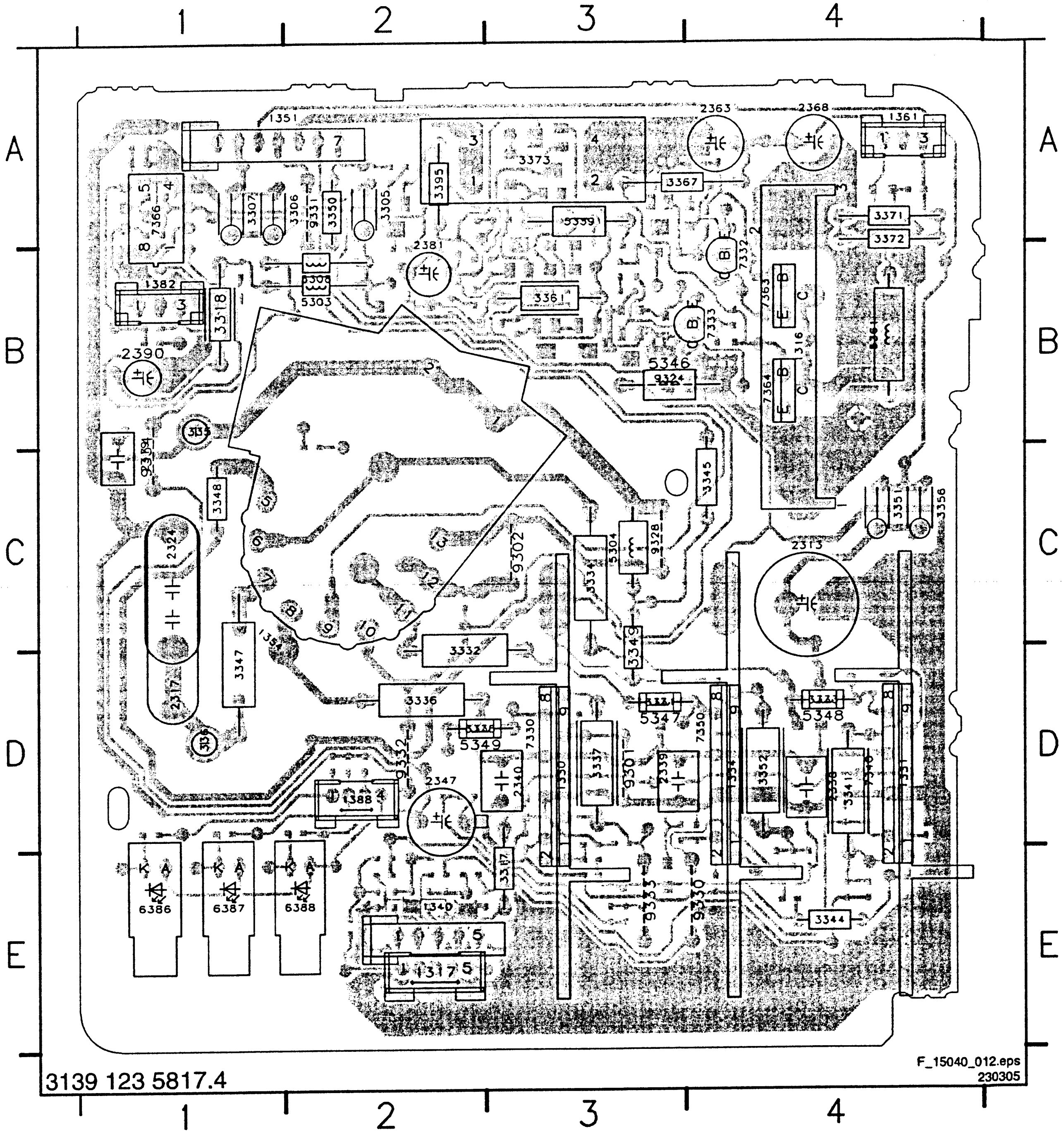
3139 123 5817.4

F_15040_011.eps
290405

1316	A15
1317	E1
1330	A8
1331	D8
1334	G8
1335	F11
1336	J16
1340	E1
1351	J6
1354-A	I12
1354-B	J13
1354-C	H12
1354-D	J14
1354-E	H12
1354-F	I12
1354-G	I12
1354-H	G12
1354-I	I12
1354-J	J12
1354-K	I12
1361	A16
1382	D16
1388	B1
2313	K9
2317	J15
2319	J10
2324	J15
2332	C5
2333	B9
2336	D7
2338	A6
2339	D6
2340	G6
2343	E8
2344	F5
2346	F7
2347	D3
2352	I5
2353	H8
2354	B4
2355	C4
2356	I7
2357	C12
2358	F3
2359	F4
2360	G2
2361	A12
2362	H2
2363	A13
2364	A13
2365	C13
2367	D13
2368	B13
2369	C8
2370	D13
2371	B4
2372	E4
2373	G3
2374	A11
2375	C11
2376	A14
2377	C15
2381	A10
2382	C11
2383	B15
2384	A13
2385	B13
2386	C13
2387	C12
2388	D10
2389	E14
2390	C15
3305	D2
3306	I9
3307	I9
3317	C8
3318	B15
3319	C16
3320	D12
3321	D12
3322	F14
3325	A4
3331	G9
3332	G10
3333	H9
3334	H10
3335	H9
3336	H10
3337	A6
3338	B4
3339	B5
3340	C4
3341	D6
3342	F4
3343	E4
3344	E5
3345	J9
3347	J15
3348	J13
3349	J9
3350	D12
3351	K8
3352	G4
3353	H3
3354	H4
3355	H4
3356	K8
3357	J10
3358	A10
3359	B10
3360	C11
3361	A11
3362	A12
3363	A13
3364	A14
3365	A13
3366	B13
3367	B13
3368	C13
3370	C15
3371	B15
3372	B15
3373	A11
3374	C12
3375	C11
3377	C11
3378	C10
3379	B11
3380	B9
3381	D9
3382	B12
3385	C13
3386	B2
3387	B2
3388	B2
3389	C2
3392	A15
3393	B12
3394	C13
3395	B10
3396	D12
3998	G1
4301	B12
4302	J11
4303	B4
4304	C4
4305	F3
4306	F3
4307	F2
4308	G2
4309	C3
4310	C12
4311	D7
4312	E8
4313	F7
4314	H8
4315	I7
4316	C10
4386	B1
4387	B1
4388	B1
4389	D3
5303	E3
5304	I10
5308	D2
5339	B12
5340	B4
5341	C4
5342	F3
5343	F3
5344	F2
5345	G2
5346	I6
5347	G9
5348	H9
5349	H9
5361	B15
6307	C8
6325	A4
6331	F10
6332	G10
6333	G10
6334	D12
6335	A11
6336	A11
6361	B11
6362	B11
6386	B2
6387	B2
6388	B2
6390	A14
6391	C13
7330	A5
7331	C10
7332	A14
7333	C14
7340	D5
7350	G5
7361	A12
7362	B12
7363	B14
7364	B14
7365	B11
7366	C14
9301	B9
9302	I11
9324	J6
F330	D3
F331	K6
F332	E3
F334	E2
F335	F2
F336	F2
F337	F2
F338	H11
F339	H11
F340	K7
F341	G11
F342	K15
F345	F11
F346	K7
F347	J15
F348	J7
F352	K6
F354	K8
F361	A15
F362	B15
F381	D16
F382	D16
F383	K7
F398	G1
F399	G2
I301	B1
I302	B1
I303	B1
I304	B2
I305	B2
I306	B2
I307	B3
I308	A4
I309	B4
I310	C4
I311	E4
I312	F3
I313	G3
I314	A14
I315	C14
I316	C14
I317	B16
I318	B12
I319	D12
I320	D13
I321	A11
I322	K9
I323	K9
I324	F11
I325	C10
I326	B11
I327	K6
I328	H5
I329	H5
I330	H9
I331	H9
I332	G9
I333	H10
I334	H10
I335	G10
I336	D3
I342	C8
I346	E8
I347	H8
I348	J10
I350	I10
I351	K9
I360	A13
I361	A11
I362	A12
I364	C13
I365	B14
I366	B13
I367	A13
I368	A14
I369	B14
I370	B10
I371	C14
I373	I11
I374	E14
I376	J13
I377	J14
I378	C2
I379	D2
I380	D14
I381	D13
I386	A10
I389	A5
I390	A7
I391	B8
I392	B5
I393	D7
I394	E8
I395	E5
I396	E5
I397	G7
I398	H8

Layout CRT Panel (Top Side)

1316 B4	1336 D1	1388 D2	2339 D3	2390 B1	3331 D3	3337 D3	3349 D3	3367 A3	5304 C3	5349 D2	7332 B4	7366 A1	9331 A2
1317 E2	1340 E2	2313 C4	2340 D3	3305 A2	3332 D2	3341 D4	3350 A2	3371 A4	5308 B2	5361 B4	7333 B4	9301 D3	9332 D2
1330 D3	1351 A1	2317 D1	2347 D2	3306 A2	3333 D4	3344 E4	3351 C4	3372 A4	5339 A3	6386 E1	7340 D4	9302 C3	9333 E3
1331 D4	1354 C1	2319 C1	2363 A4	3307 A1	3334 C3	3345 C4	3352 D4	3373 A3	5346 B3	6387 E1	7350 D4	9324 B3	9334 C1
1334 D4	1361 A4	2324 C1	2368 A4	3317 E3	3335 D2	3347 D1	3356 C4	3395 A2	5347 D3	6388 E2	7363 B4	9328 C3	
1335 B1	1382 B1	2338 D4	2381 B2	3318 B1	3336 D2	3348 C1	3361 B3	5303 B2	5348 D4	7330 D3	7364 B4	9330 E4	


1
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3
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A
B
C
D
E
1351
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2363
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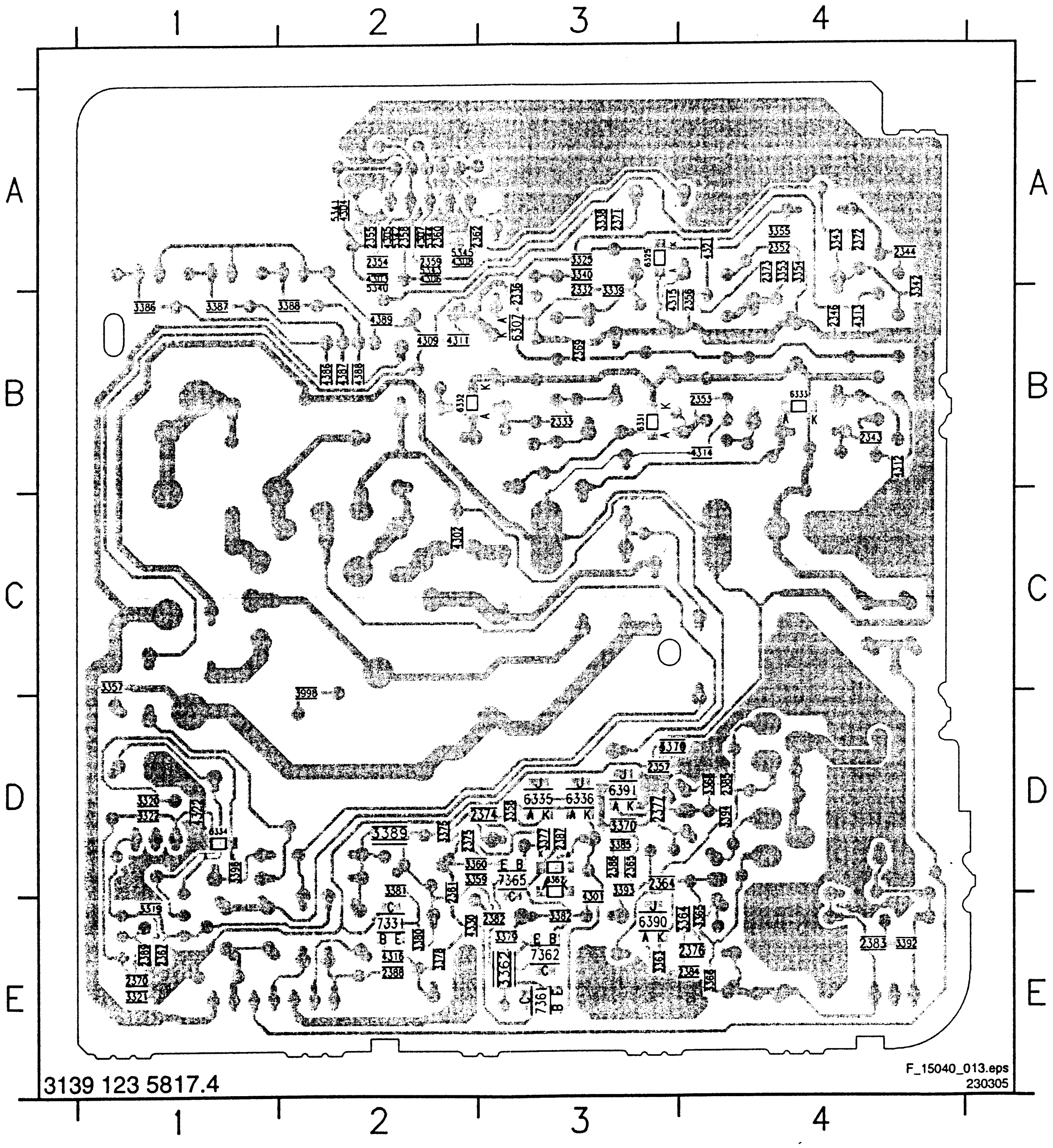
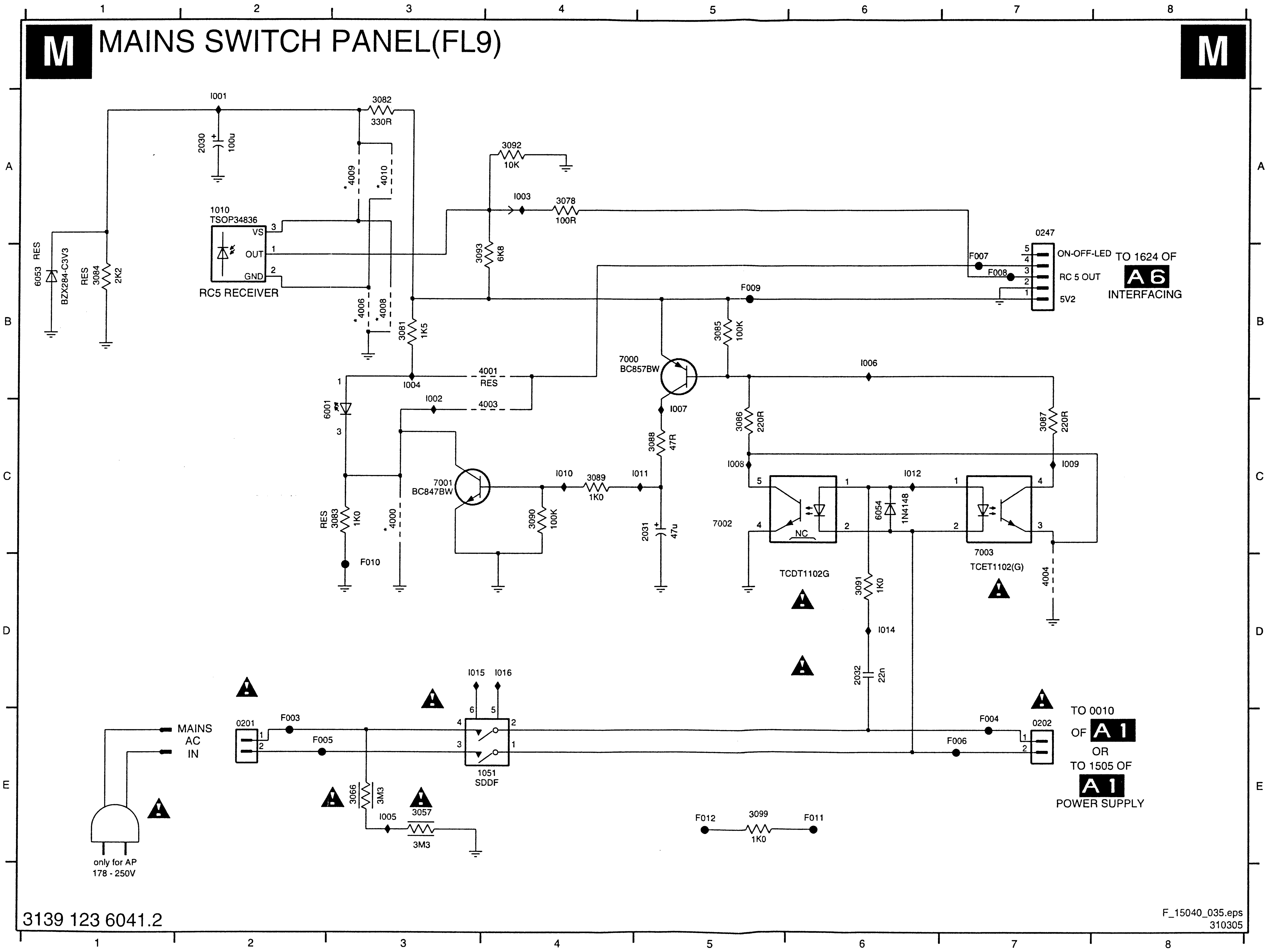
3371
3372
3339
2381
3361
1382
3318
2390
5346
3345
3348
2317
3347
3332
3336
3349
5347
5348
5349
2347
2313
3344
1340
1317
6386
6387
6388
3139 123 5817.4
F_15040_012.eps
230305

Layout CRT Panel (Bottom Side)

2332 D2	2353 D1	2360 E3	2370 A4	2388 A3	3339 D2	3362 A2	3377 B2	3388 D3	4304 E3	4312 D1	4387 D3	5344 E3	6333 D1
2333 D2	2354 E3	2361 B3	2382 A2	2389 A4	3340 E2	3363 A2	3378 A3	3392 A1	4305 E3	4313 D1	4388 D3	5345 E3	6334 B4
2336 D2	2355 E3	2362 E3	2383 A1	3319 A4	3342 D1	3364 A1	3379 A2	3394 B1	4306 E3	4314 D1	4389 D3	6307 D2	6361 B2
2343 D1	2356 D1	2364 B2	2384 A1	3320 B4	3343 E1	3365 A1	3380 A3	3396 B4	4307 E3	4315 D2	5340 E3	6308 A3	7331 A3
2344 E1	2357 B2	2365 B2	2385 B1	3321 A4	3354 E1	3366 A1	3381 A3	3999 B3	4308 E3	4321 E1	5341 E3	6325 E2	7361 A2
2346 D1	2358 E3	2367 A4	2386 B2	3322 B4	3355 E1	3368 B1	3386 D4	4302 C3	4309 D8	4330 A3	5342 E3	6331 D2	7362 A2
2352 E1	2359 E3	2369 D2	2387 B2	3325 E2	3357 B4	3370 B2	3387 D4	4303 E3	4311 D3	4386 D3	5343 E3	6332 D3	7365 B2

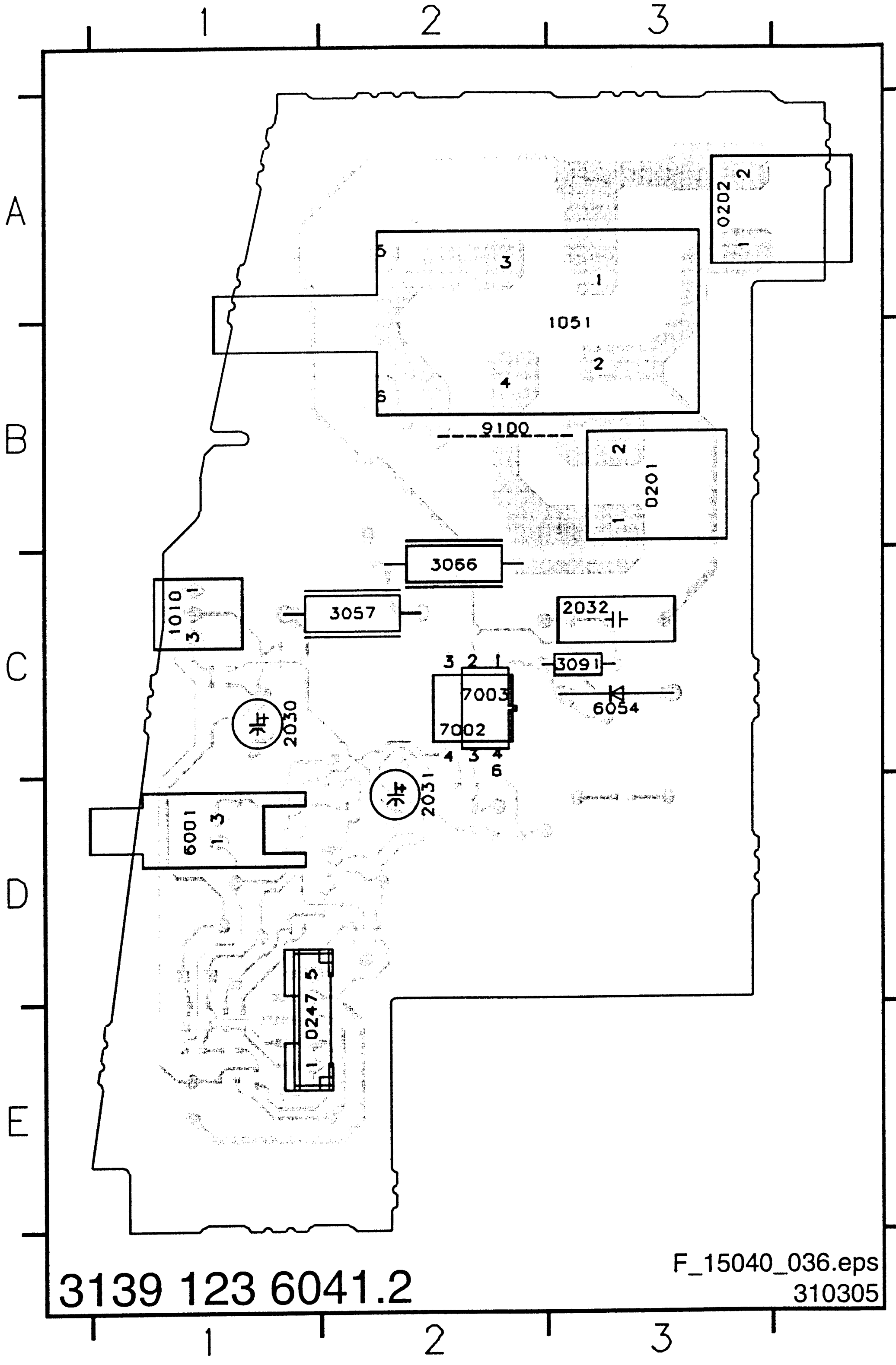

1
2
3
4
A
B
C
D
E
3386
3387
3388
3998
6335
6336
6391
6390
7365
7331
7362
7361
2374
3389
2383
3139 123 5817.4
F_15040_013.eps
230305

Mains Switch Panel (FL9)


M MAINS SWITCH PANEL(FL9) M
1 2 3 4 5 6 7 8
A B C D E
I001
3082 330R
2030 100u
4009
4010
3092 10K
I003
3078 100R
1010 TSOP34836
VS OUT GND
RC5 RECEIVER
6053 RES BZX284-C3V3
3084 RES 2K2
3093 6K8
4006
4008
3081 1K5
0247
ON-OFF-LED
RC 5 OUT
5V2
TO 1624 OF
A6
INTERFACING
F007
F008
F009
3085 100K
7000 BC857BW
I006
4001 RES
I004
I002
4003
6001
I007
3086 220R
3087 220R
3088 47R
I008
I009
7001 BC847BW
I010
3089 1K0
I011
I012
3083 RES 1K0
4000
3090 100K
2031 47u
7002
NC
6054 1N4148
7003
F010
TCDT1102G
TCET1102(G)
3091 1K0
4004
I014
I015 I016
2032 22n
MAINS AC IN
0201
F003
F005
1051 SDDF
F004
F006
0202
TO 0010 OF A1 OR TO 1505 OF A1 POWER SUPPLY
3066 3M3
I005
3057 3M3
F012
3099 1K0
F011
only for AP 178 - 250V
3139 123 6041.2
F_15040_035.eps
310305

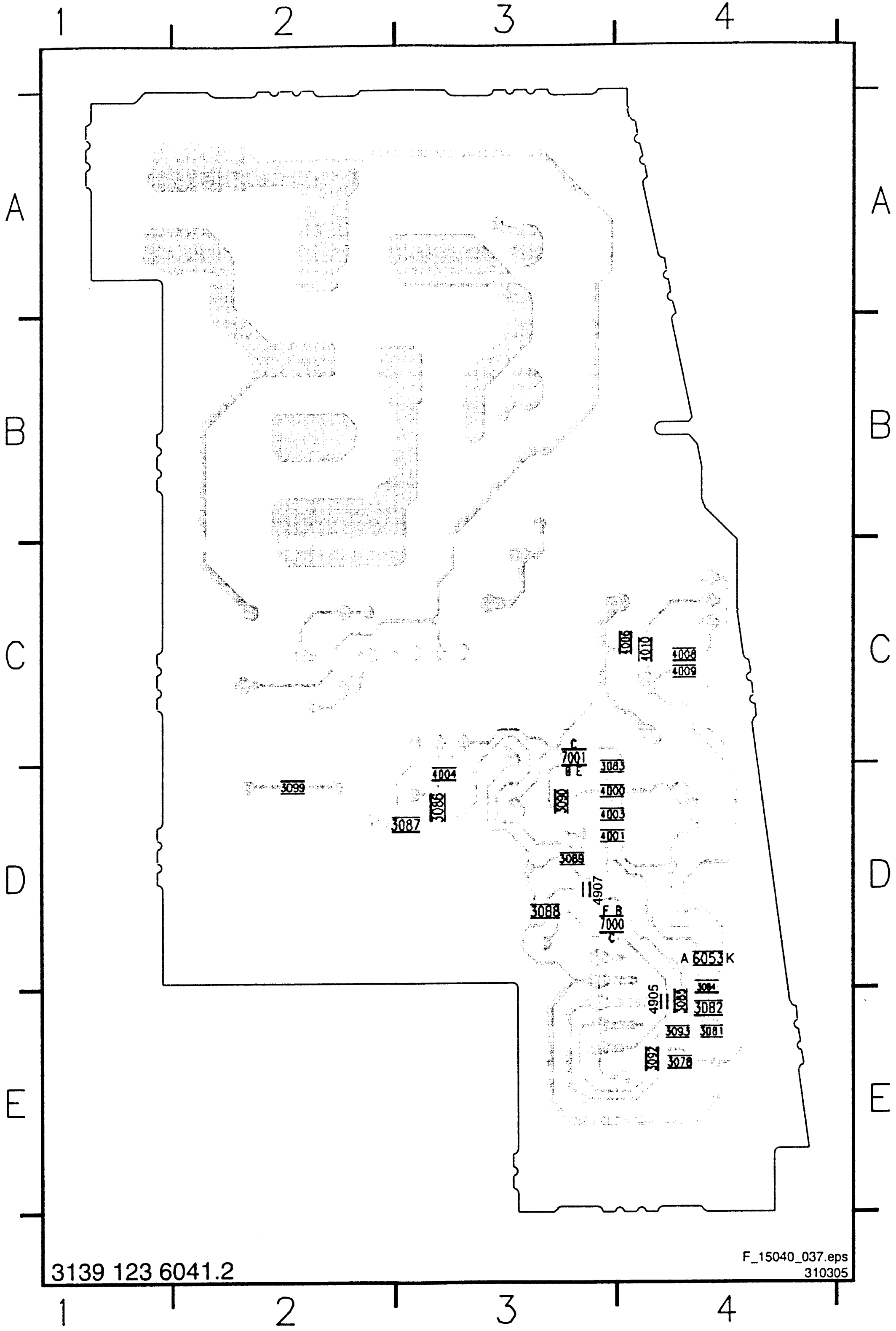
0201	E2
0202	E7
0247	A7
1010	A2
1051	E4
2030	A2
2031	C5
2032	D6
3057	E3
3066	E3
3078	A4
3081	B3
3082	A3
3083	C3
3084	B1
3085	B5
3086	C5
3087	C7
3088	C5
3089	C4
3090	C4
3091	D6
3092	A4
3093	B3
3099	E5
4000	C3
4001	B4
4003	C4
4004	D7
4006	B3
4008	B3
4009	A3
4010	A3
6001	C3
6053	B1
6054	C6
7000	B5
7001	C3
7002	C5
7003	C7
F003	E2
F004	E7
F005	E2
F006	E7
F007	B7
F008	B7
F009	B5
F010	D3
F011	E6
F012	E5
I001	A2
I002	B3
I003	A4
I004	B3
I005	E3
I006	B6
I007	C5
I008	C5
I009	C7
I010	C4
I011	C5
I012	C6
I014	D6
I015	D3
I016	D4

Layout Mains Switch Panel (FL9) (Top Side)


1
2
3
A
B
C
D
E
0202
1051
9100
0201
3066
3057
2032
1010
3091
7003
7002
6054
2030
2031
6001
0247
3139 123 6041.2
F_15040_036.eps
310305

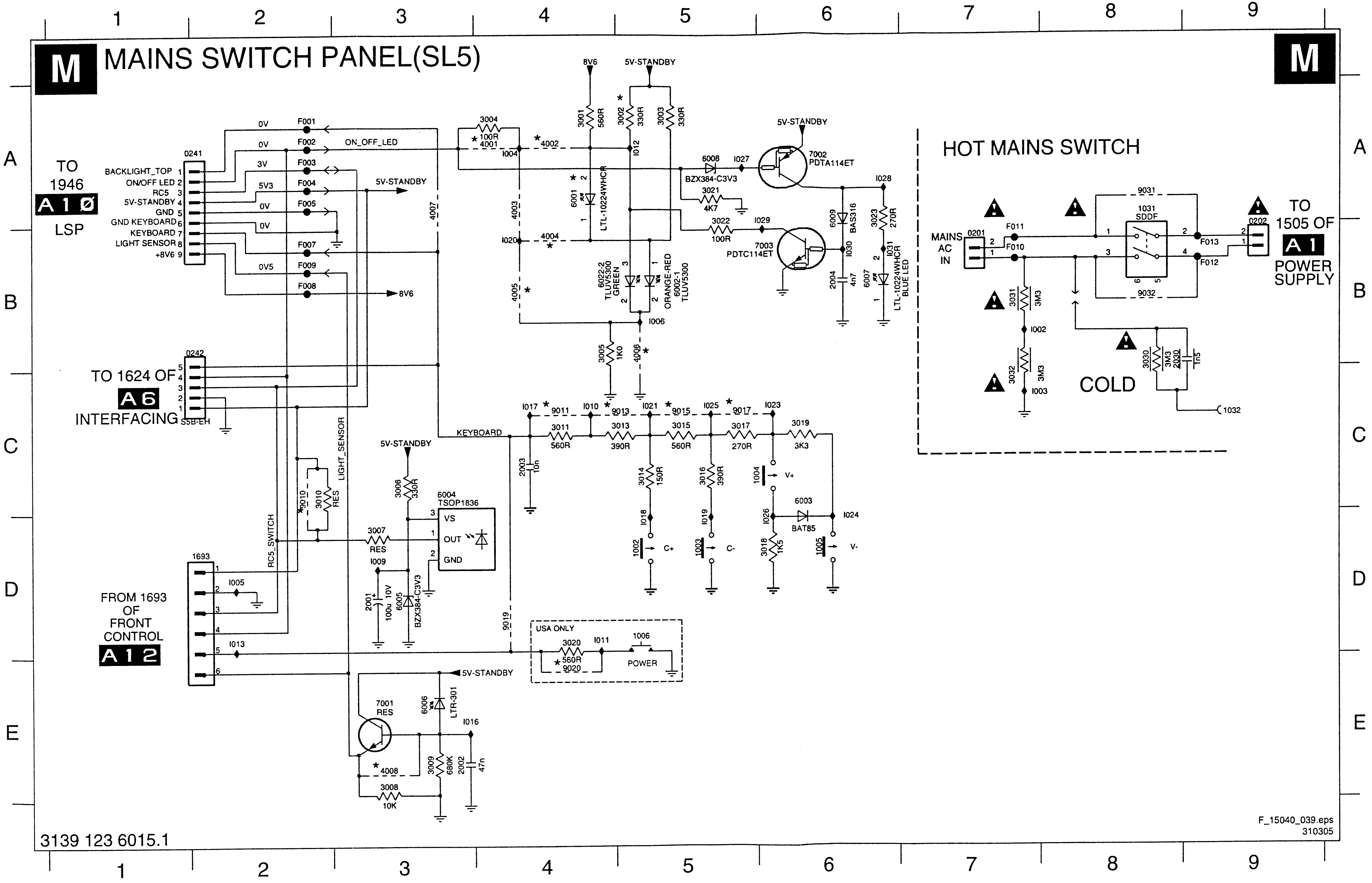
0201	B3
0202	A3
0247	E1
1010	C1
1051	B3
2030	C1
2031	D2
2032	C3
3057	C2
3066	C2
3091	C3
6001	D1
6054	C3
7002	C2
7003	C2
9100	B2

Layout Mains Switch Panel (FL9) (Bottom Side)


1
2
3
4
A
B
C
D
E
3086
1010
4008
4009
7001
3083
4004
3090
4000
4003
4001
3099
3087
3085
3089
4907
3088
7000
A 6053 K
4905
3084
3082
3093
3081
3092
3078
3139 123 6041.2
F_15040_037.eps
310305

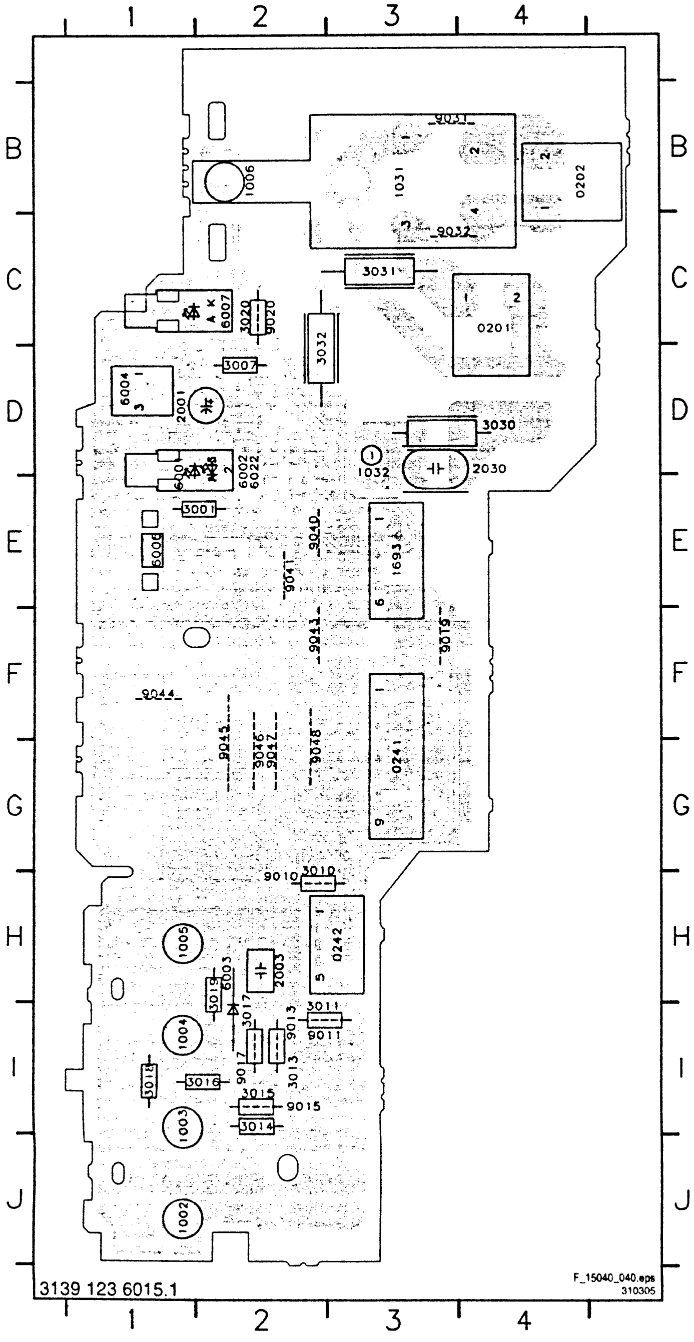
3078	E4
3081	E4
3082	E4
3083	D3
3084	E4
3085	E4
3086	D3
3087	D3
3088	D3
3089	D3
3090	D3
3092	E4
3093	E4
3099	D2
4000	D3
4001	D3
4003	D3
4004	D3
4006	C4
4008	C4
4009	C4
4010	C4
4905	E4
4907	D3
6053	D4
7000	D3
7001	C3

Mains Switch Panel (SL5)


M
MAINS SWITCH PANEL(SL5)
M
TO 1946 A10 LSP
0241
BACKLIGHT_TOP 1
ON/OFF LED 2
RC5 3
5V-STANDBY 4
GND 5
GND KEYBOARD 6
KEYBOARD 7
LIGHT SENSOR 8
+8V6 9
0V
0V
3V
5V3
0V
0V
0V5
F001
F002
F003
F004
F005
F007
F009
F008
ON_OFF_LED
5V-STANDBY
8V6
TO 1624 OF A6 INTERFACING
0242
SSB-EH
FROM 1693 OF FRONT CONTROL A12
1693
I005
I013
RC5_SWITCH
LIGHT_SENSOR
9010
3010 RES
3007 RES
I009
2001 100u 10V
6005 BZX384-C3V3
3006 330R
6004 TSOP1836
VS
OUT
GND
KEYBOARD
2003 10n
9019
USA ONLY
3020 560R
9020
I011
1006
POWER
5V-STANDBY
7001 RES
6006 LTR-301
I016
4008
3008 10K
3009 680K
2002 47n
8V6
5V-STANDBY
3004 100R
4001
I004
4002
3001 560R
3002 330R
3003 330R
I012
6001
LTL-10224WHCR
4007
4003
I020
4004
4005
6022-2 TLUV5300 GREEN
6002-1 TLUV5300 ORANGE-RED
I006
3005 1K0
4006
6008 BZX384-C3V3
I027
3021 4K7
3022 100R
I029
7002 PDTA114ET
7003 PDTC114ET
5V-STANDBY
I028
6009 BAS316
3023 270R
I030
I031
2004 4n7
6007 LTL-10224WHCR BLUE LED
I017 9011
I010 9013
I021 9015
I025 9017
I023
3011 560R
3013 390R
3015 560R
3017 270R
3019 3K3
3014 150R
3016 390R
I018
I019
1002 C+
1003 C-
1004 V+
I026
6003 BAT85
3018 1K5
I024
1005 V-
HOT MAINS SWITCH
MAINS AC IN
0201
F011
F010
9031
1031 SDDF
9032
F013
F012
0202
TO 1505 OF A1 POWER SUPPLY
3031 3M3
I002
3032 3M3
I003
COLD
3030 3M3
2030 1n5
I032
3139 123 6015.1
F_15040_039.eps
310305

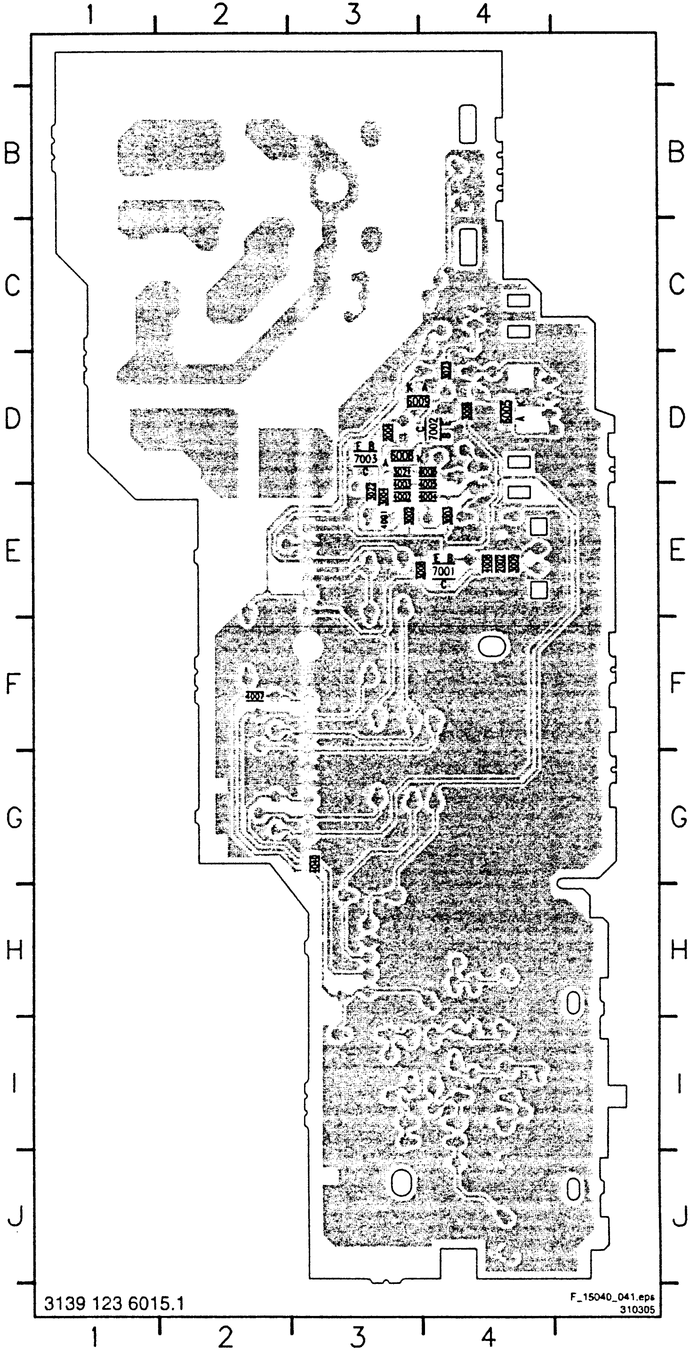
0201	B7
0202	B9
0241	A1
0242	B2
1002	D5
1003	D5
1004	C6
1005	D6
1006	D5
1031	A8
1032	C9
1693	D2
2001	D3
2002	E3
2003	C4
2004	B6
2030	B8
3001	A4
3002	A5
3003	A5
3004	A4
3005	B4
3006	C3
3007	D3
3008	E3
3009	E3
3010	C2
3011	C4
3013	C5
3014	C5
3015	C5
3016	C5
3017	C5
3018	D6
3019	C6
3020	D4
3021	A5
3022	A5
3023	A6
3030	B8
3031	B7
3032	C7
4001	A4
4002	A4
4003	A4
4004	B4
4005	B4
4006	B5
4007	A3
4008	E3
6001	A4
6002-1	B5
6003	C6
6004	C3
6005	D3
6006	E3
6007	B6
6008	A5
6009	A6
6022-2	B4
7001	E3
7002	A6
7003	B6
9010	C2
9011	C4
9013	C5
9015	C5
9017	C5
9019	D4
9020	E4
9031	A8
9032	B8
F001	A2
F002	A2
F003	A2
F004	A2
F005	A2
F007	B2
F008	B2
F009	B2
F010	B7
F011	B7
F012	B9
F013	B9
I002	B7
I003	C7
I004	A4
I005	D2
I006	B5
I009	D3
I010	C4
I011	D4
I012	A5
I013	D2
I016	E3
I018	D5
I019	D5
I020	B4
I021	C5
I023	C6
I024	D6
I025	C4
I025	C5
I026	D6
I027	A5
I028	A6
I029	A6
I030	B6
I031	B6

Layout Mains Switch Panel (SL5) (Top Side)


1
2
3
4
B
C
D
E
F
G
H
I
J
1006
1031
9031
9032
0202
3031
0201
3020
9020
6007
A K
3032
3007
6004
2001
3030
1032
2030
6001
6002
6022
3001
6006
9040
9041
1693
9043
9019
9044
0241
9045
9046
9047
9048
9010
3010
0242
1005
2003
6003
3019
3017
9013
3011
9011
1004
3018
3016
9017
3013
3015
9015
1003
3014
1002
3139 123 6015.1
F_15040_040.eps
310305

0201	C4
0202	B4
0241	G3
0242	H3
1002	J1
1003	I1
1004	I1
1005	H1
1006	B2
1031	B3
1032	D3
1693	E3
2001	D1
2003	H2
2030	D4
3001	E2
3007	D2
3010	G2
3011	I2
3013	I2
3014	I2
3015	I2
3016	I2
3017	I2
3018	I1
3019	H2
3020	C2
3030	D4
3031	C3
3032	D2
6001	D1
6002	D2
6003	H2
6004	D1
6006	E1
6007	C2
6022	D2
9010	H2
9011	I2
9013	I2
9015	I2
9017	I2
9019	F3
9020	C2
9031	B3
9032	C3
9040	E2
9041	E2
9043	F2
9044	F1
9045	G2
9046	G2
9047	G2
9048	G2

Layout Mains Switch Panel (SL5) (Bottom Side)


1
2
3
4
B
C
D
E
F
G
H
I
J
7003
7002
7001
3139 123 6015.1
F_15040_041.eps
310305

2002	E4
2004	D3
3002	E3
3003	E4
3004	E3
3005	D4
3006	D4
3008	E4
3009	E4
3021	D3
3022	E3
3023	D4
4001	E3
4002	E3
4003	E3
4004	E4
4005	E4
4006	D4
4007	F2
4008	E4
4040	G3
6005	D4
6008	D3
6009	D3
7001	E4
7002	D4
7003	D3

9.2.1 Basic Description.

T0 - T1

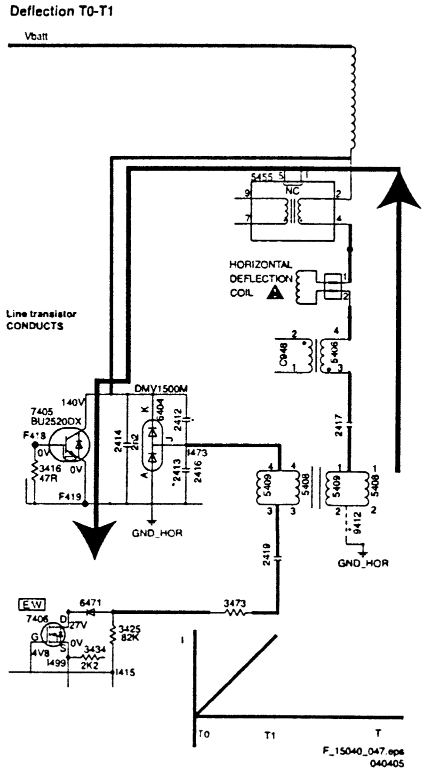

Deflection T0-T1
Vbatt
5455
NC
HORIZONTAL DEFLECTION COIL
C948
5406
Line transistor CONDUCTS
7405 BU2520DX
140V
F418
0V
3416 47R
F419
DMV1500M
6404
2414 2n2
2412
2413
2416
1473
2417
5409
5408
9412
GND_HOR
2419
E/W
6471
7406
27V
3425 82K
3434 2K2
4V8
1499
1415
3473
I
T0
T1
T
F_15040_047.eps
040405

Figure 9-2 Deflection T0 - T1

At switch on of the TV set Scap (2417/2418) is charged by Vbatt. At T0 line transistor 7405 starts conducting. Now the current flows as shown in figure (T0 - T1), as a result of which the horizontal deflection will bend the electron beam from the centre of the screen to the right. Note that the deflection current has an almost linear waveform.

T1 - T2

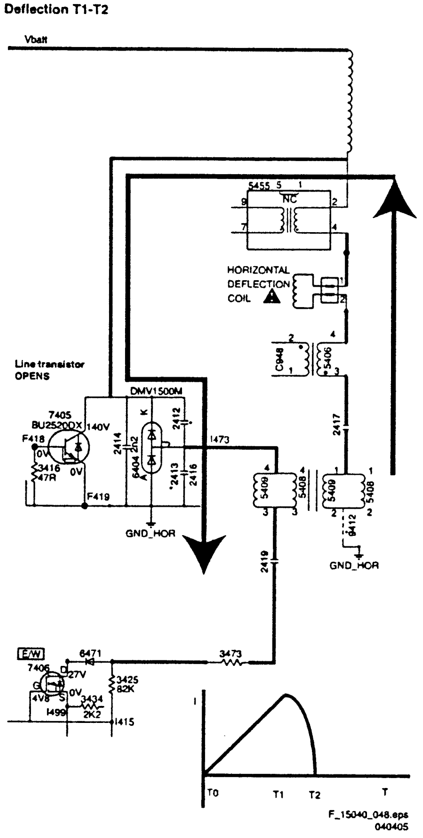

Deflection T1-T2
Vbatt
5455
NC
HORIZONTAL DEFLECTION COIL
C948
5406
Line transistor OPENS
7405 BU2520DX
140V
F418
0V
3416 47R
F419
DMV1500M
6404
2414 2n2
2412
2413
2416
1473
2417
5409
5408
9412
GND_HOR
2419
E/W
6471
7406
27V
3425 82K
3434 2K2
4V8
1499
1415
3473
I
T0
T1
T2
T
F_15040_048.eps
040405

Figure 9-3 Deflection T1 - T2

At T1 line transistor 7405 is switched off and the line fly-back starts. When the line transistor stops conducting, the line current is at its maximum level. The current charges fly-back capacitors 2412 and 2413, and also capacitor 2414. This causes a decrease of line current. (Note that this current has a half-cosine waveform). The deflection position (i.e. the electron beam) is in the middle of the screen now.

T2 - T3

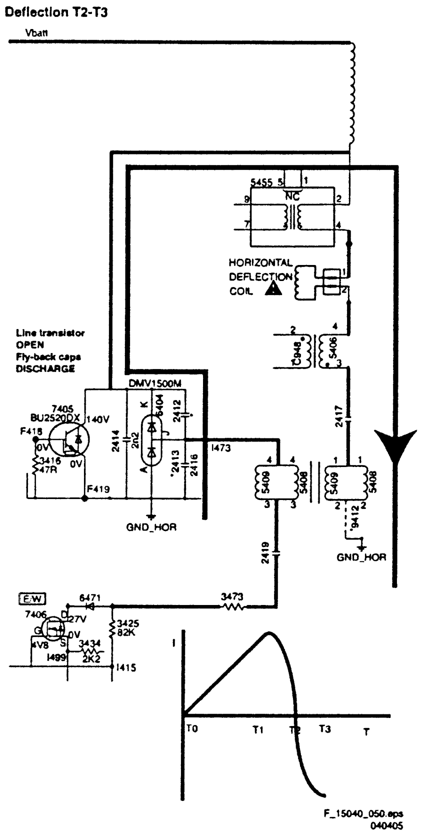

Deflection T2-T3
Vbatt
5455
NC
HORIZONTAL DEFLECTION COIL
C948
5406
Line transistor OPEN Fly-back caps DISCHARGE
7405 BU2520DX
140V
F418
0V
3416 47R
F419
DMV1500M
6404
2414 2n2
2412
2413
2416
1473
2417
5409
5408
9412
GND_HOR
2419
E/W
6471
7406
27V
3425 82K
3434 2K2
4V8
1499
1415
3473
I
T0
T1
T2
T3
T
F_15040_050.eps
040405

Figure 9-4 Deflection T2 - T3

At T2 the deflection current is 0 Amp. The fly-back capacitor (2412/2413/2414) is charged to approximately 1200 V and will discharge now. As a result of this, the deflection current will bend the electron beam to the left of the screen.

T3 - T4

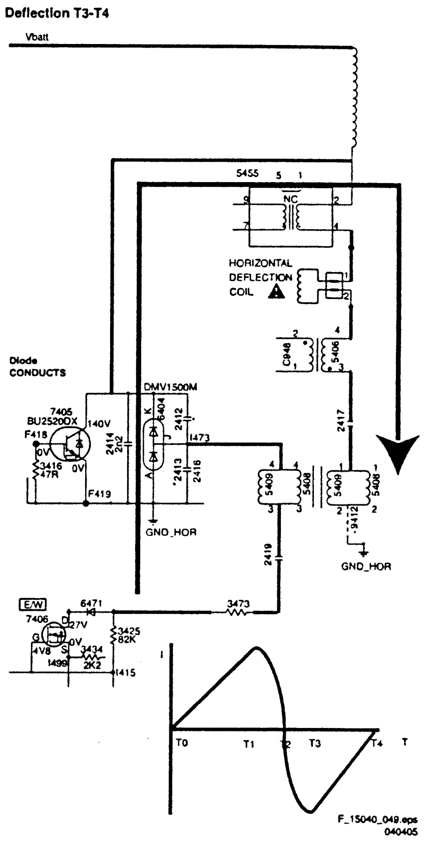

Deflection T3-T4
Vbatt
5455
NC
HORIZONTAL DEFLECTION COIL
C948
5406
Diode CONDUCTS
7405 BU2520DX
140V
F418
0V
3416 47R
F419
DMV1500M
6404
2414 2n2
2412
2413
2416
1473
2417
5409
5408
9412
GND_HOR
2419
E/W
6471
7406
27V
3425 82K
3434 2K2
4V8
1499
1415
3473
I
T0
T1
T2
T3
T4
T
F_15040_049.eps
040405

Figure 9-5 Deflection T3 - T4

When the fly-back capacitor (2412/2413/2414) is discharged, the current is at its maximum negative level. This maximum negative current will then charge the fly-back capacitor (2412/2413/2414) with a negative voltage. At this moment, fly-back diode 6404 will start conducting. The voltage at Scap 2418 causes a linear current flow from T3 - T4. This causes a deflection current which bends the electron beam back from the left to the centre of the screen.

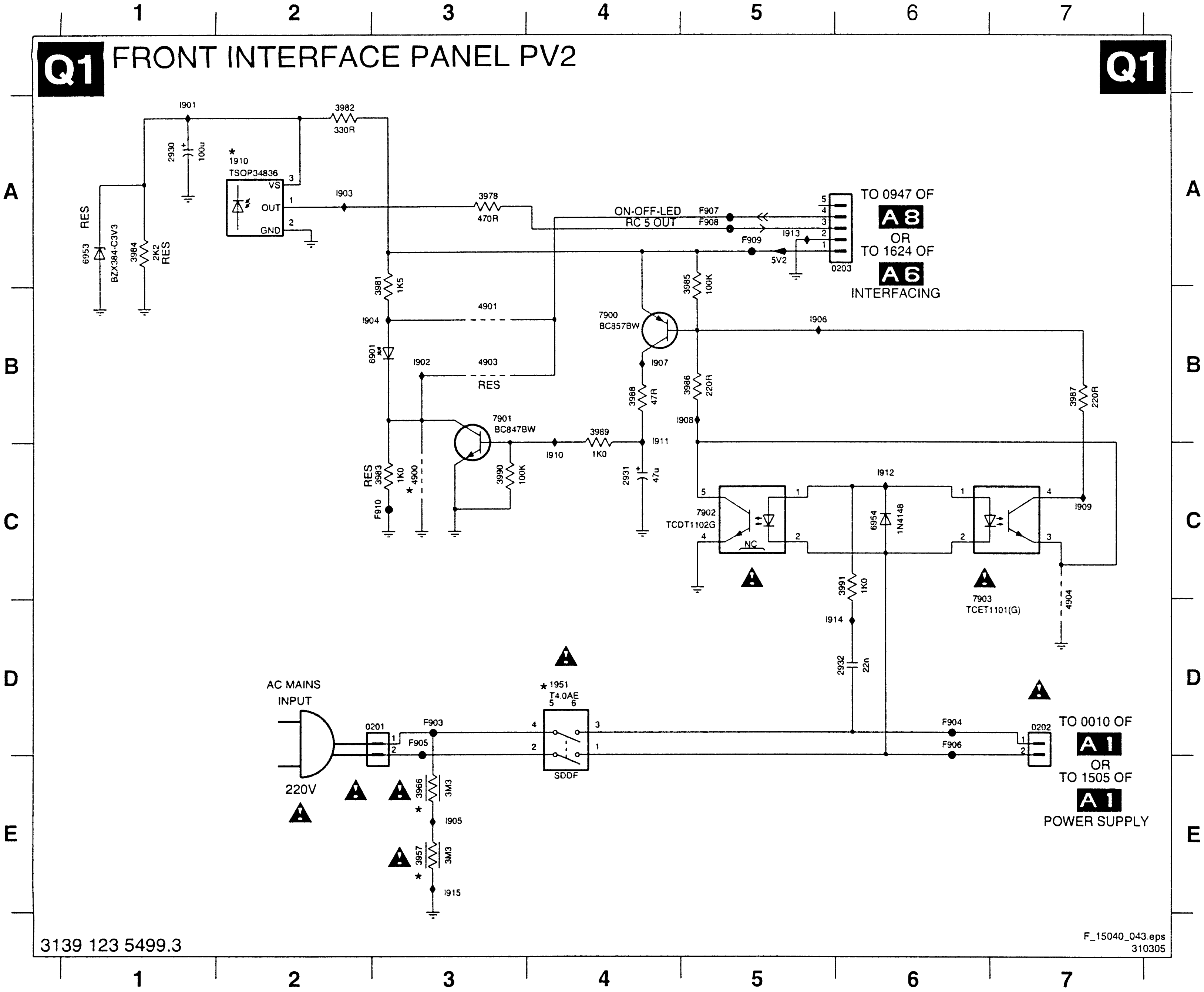
9.2.2 Standby and Start Up

In Standby mode, both +5V and Vbatt are not available in order to meet the standby power saving requirement.

During the start-up phase, +5V is switched on by STANDBY via 7548/7547/7545 and Vbatt is switched on by STANDBY via 7573.

After this, Hdrive is output from the SSB to driver 7404 (see circuit diagram A2), and consequently to the deflection output stage (7405). During the slow start-up phase, the Hdrive duty cycle gradually increases from small to normal. At the

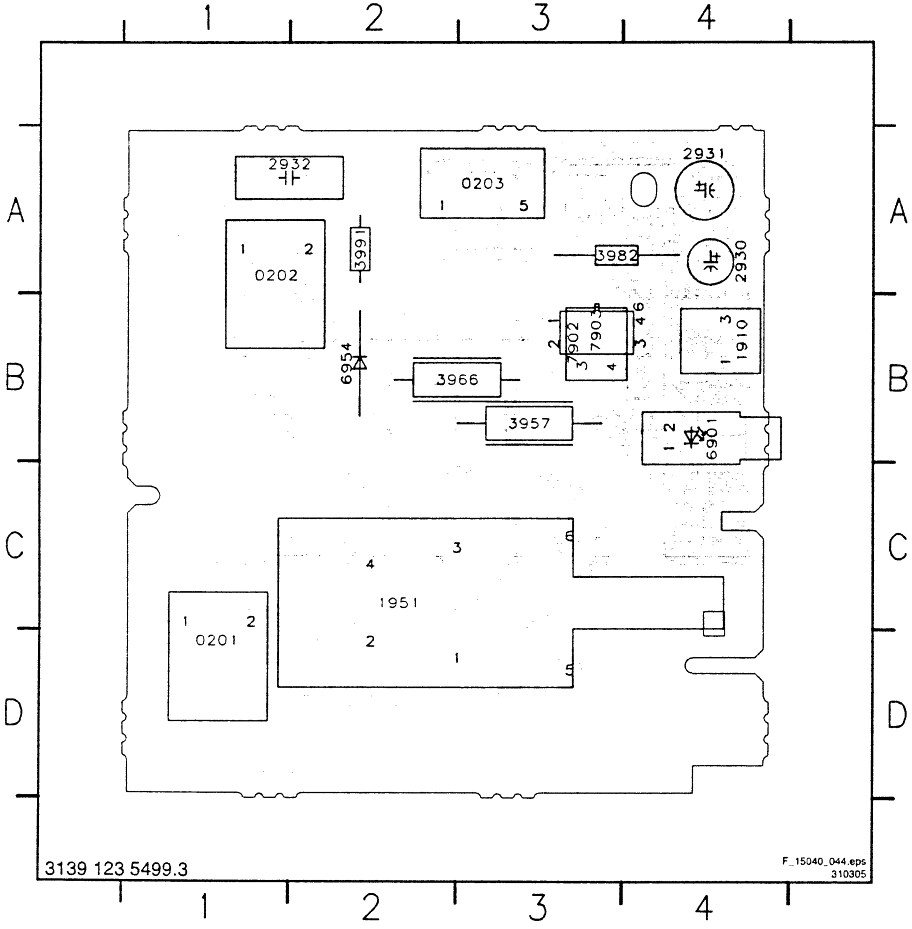
Front Interface Panel (PV2)


Q1
FRONT INTERFACE PANEL PV2
Q1
1 2 3 4 5 6 7
A B C D E
I901
3982
330R
2930
100u
★
1910
TSOP34836
VS
OUT
GND
3
1
2
I903
3978
470R
RES
6953
BZX384-C3V3
3984
2K2
RES
ON-OFF-LED
RC 5 OUT
F907
F908
F909
I913
5V2
5 4 3 2 1
0203
TO 0947 OF
A8
OR
TO 1624 OF
A6
INTERFACING
3981
1K5
3985
100K
I904
4901
7900
BC857BW
I906
6901
I902
4903
RES
I907
3988
47R
3986
220R
3987
220R
I908
7901
BC847BW
3989
1K0
I911
I910
RES
3983
1K0
★
4900
3990
100K
2931
47u
F910
I912
7902
TCDT1102G
NC
6954
1N4148
I909
7903
TCET1101(G)
3991
1K0
I914
4904
2932
22n
AC MAINS
INPUT
220V
0201
F903
F905
★ 1951
T4.0AE
5 6
4 3
2 1
SDDF
F904
F906
0202
TO 0010 OF
A1
OR
TO 1505 OF
A1
POWER SUPPLY
3966
3M3
★
I905
3957
3M3
★
I915
3139 123 5499.3
F_15040_043.eps
310305

0201	D2
0202	D7
0203	A6
1910	A2
1951	D4
2930	A1
2931	C4
2932	D6
3957	E3
3966	E3
3978	A3
3981	A3
3982	A2
3983	C3
3984	A1
3985	A5
3986	B5
3987	B7
3988	B4
3989	B4
3990	C3
3991	C6
4900	C3
4901	B3
4903	B3
4904	D7
6901	B3
6953	A1
6954	C6
7900	B4
7901	B3
7902	C5
7903	D6
F903	D3
F904	D6
F905	D3
F906	D6
F907	A5
F908	A5
F909	A5
F910	C3
I901	A1
I902	B3
I903	A2
I904	B2
I905	E3
I906	B5
I907	B4
I908	B5
I909	C7
I910	C4
I911	B4
I912	C6
I913	A5
I914	D5
I915	E3

Layout Front Interface Panel (PV2) (Top Side)

0201	D1	0203	A3	1951	C2	2931	A4	3957	B3	3982	A3	6901	B4	7902	B3
0202	A1	1910	B4	2930	A4	2932	A1	3966	B3	3991	A2	6954	B2	7903	B3


1
2
3
4
A
B
C
D
2932
0203
2931
3991
0202
3982
2930
7902
7903
1910
6954
3966
3957
6901
1951
0201
3139 123 5499.3
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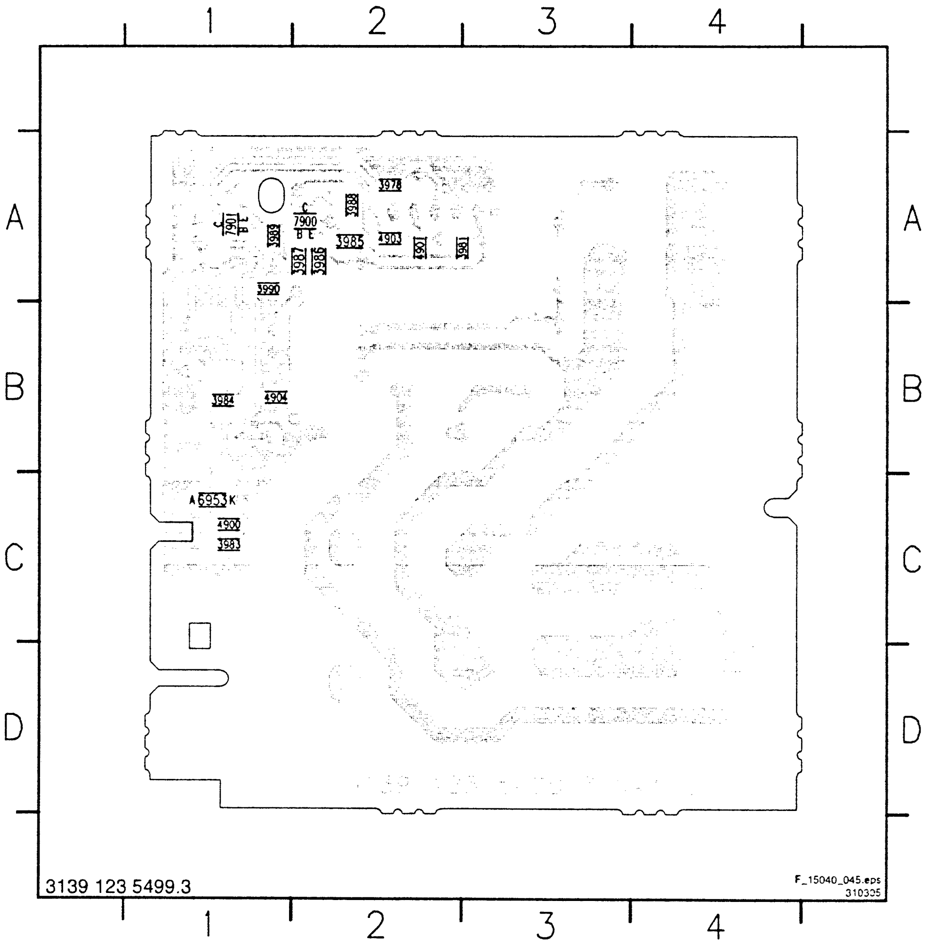
310305

Layout Front Interface Panel (PV2) (Bottom Side)

3978	A2	3983	C1	3985	A2	3987	A2	3989	A1	4900	C1	4903	A2	6953	C1	7901	A1
3981	A2	3984	B1	3986	A2	3988	A2	3990	A1	4901	A2	4904	B1	7900	A2		


1
2
3
4
A
B
C
D
3978
7901
7900
3988
3989
3985
4903
4901
3981
3987
3986
3990
3984
4904
6953
4900
3983
3139 123 5499.3
F_15040_045.eps
310305

8. Alignments

Index of this chapter:
8.1 General Alignment Conditions
8.2 Hardware Alignments
8.3 Software Alignments
8.4 Option Settings

8.1 General Alignment Conditions

8.1.1 Default Alignment Settings

Perform all electrical adjustments under the following conditions:

- Power supply voltage: 230 V_{AC} / 50 Hz (± 10 %).
- Connect the set to the mains via an isolation transformer with low internal resistance.
- Allow the set to warm up for approximately 20 to 30 minutes.
- Measure voltages and waveforms in relation to chassis ground (with the exception of the voltages on the primary side of the power supply).
  Caution: never use heatsinks as ground.
- Test probe: 100 : 1, Ri > 10 Mohm, Ci < 3.5 pF.
- Use an isolated trimmer/screwdriver to perform alignments.

Perform all electrical adjustments with the following default settings (for all CRTs):

- Choose "Soft" picture mode with the "Smart Picture" button on the remote control.
- Set "Dynamic Contrast" and "Active Control" to "off" (if either one of them is present).
- Set "Brightness" to aligned value unless otherwise specified.
- Set "Contrast value" to 99.

8.1.2 Adjustment Sequence

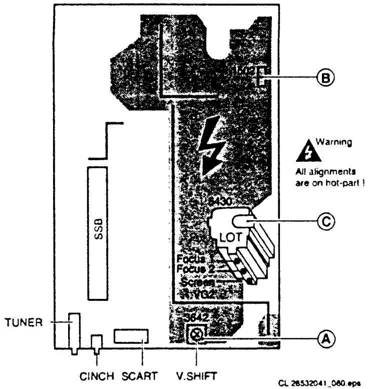
Use the following adjustment sequence:

1. Set the correct TV-set OPTIONS as described in paragraph "Options". After storing, re-start the set.
2. Rough adjustment of VG2 and FOCUS (potentiometers in "midway" positions).
3. RF-AGC alignment.
4. IF-PLL OFFSET adjustment.
5. Rough adjustment of GEOMETRY.
6. Allow the set to warm up.
7. Precise adjustment of VG2 and FOCUS.
8. Precise adjustment of GEOMETRY.
9. PIP alignments (if present).
10. COLOUR alignments.
11. Other software alignments.

8.2 Hardware Alignments

Notes:

- The Service Alignment Mode (SAM) is described in chapter 5 "Service Modes, Error Codes, and Fault Finding".
- Use the cursor-, menu-, and OK-buttons of the remote control (RC) transmitter for navigation.



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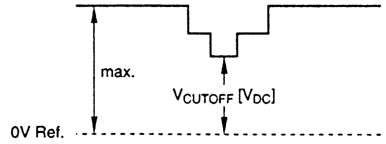
110402

Figure 8-1 Top view LSP

8.2.1 Vg2 Adjustment

In the frame-blanking period of the R, G, and B signals applied to the CRT, the video processor inserts a measuring pulse with different DC levels. Measure the black level pulse during the vertical flyback at the RGB cathodes of the CRT.

1. Connect the RF output of a pattern generator to the antenna input. Input a "black" picture (blank screen on CRT without any OSD info) test pattern.
2. In the SAM mode, set the "Normal Red", "Normal Green" and "Normal Blue" values to "0" for "White Tone".
3. Disable the black current loop (via the AKB bit).
4. Use the MENU key to enter the "user" menu, select "Picture", and set "Brightness" and "Contrast" to "0".
5. Set the oscilloscope to 20 V/div and the time base to 20 us/div. Use external triggering on the vertical pulse.
   Caution: use a trigger point on the "**cold**" side!
6. Ground the scope on the CRT panel ("**cold**" side) and connect a 10:1 probe to one of the cathodes of the picture tube socket (see circuit diagram B1).
7. Measure at test points F338, F339 and F341 on the picture tube socket the DC-level of the measuring pulse (1st full line after the frame blanking) with respect to earth.
8. Select the pin with the highest level found and adjust V_cutoff by means of the Vg2-potmeter (lowest-one) on the Line Output Transformer (LOT) to 160 +/- 5 V_{DC} (for all screen sizes).
9. Reset "Contrast" and "Brightness" to their original values.



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131000

Figure 8-2 Waveform Vg2 alignment

8.2.2 Focus alignment

The LOT has the following outline:

- Focus 1 (F1) = Static alignment (red wire).
- Focus 2 (F2) = Dynamic alignment (white wire).

1. Use an external video pattern generator to input a "circle" or "crosshatch" test pattern to the set.
2. Choose "Natural" picture mode with the "Smart Picture" button on the remote control transmitter.
3. Adjust the "dynamic focus 2" potentiometer (in the middle on the LOT) until the horizontal lines at the centre of the screen are of minimum width without introducing a visible haze.
4. Adjust the "static focus 1" potentiometer (highest of the LOT) until the horizontal lines at the sides of the screen are of minimum width without introducing a visible haze.
5. Repeat these two steps to achieve the best result.

8.3 Software Alignments

Put the set in the SAM (see the "Service Modes, Error Codes and Fault Finding" section). The SAM menu will now appear on the screen. The different alignment parameters are described further on.

Notes:

- All changes to menu items and alignments must be stored manually.
- If an empty EAROM (permanent memory) is detected, all settings are set to pre-programmed default values, so the set must be re-aligned.

8.3.1 Tuner

AGC

1. Set an external pattern generator to a colour bar video signal and connect the RF output to the aerial input of the TV. Set the amplitude to 10 mV and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
2. Put the set in the SAM mode.
3. Select via the TUNER menu, the AGC sub-menu.
4. Connect a DC multi-meter to pin 1 of the tuner (F235, AGC pin).
5. Adjust the AGC until the voltage at pin 1 (F235, AGC pin) of the tuner is 3.3 V (+/- 0.1 V). The value can be incremented or decremented by pressing the right/left CURSOR button on the RC.
6. After alignment, save the value(s) with the STORE command in the SAM main menu.

IF PLL OFFSET
No adjustments needed: default value is "35".

If the mentioned default value does not give the required result, use the following alignment method:

1. Set an external pattern generator to a crosshatch video signal and connect the RF output to the aerial input of the TV. Set the amplitude to 10 mV and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
   - For "Negative modulation", the **sound** signal must be a non-modulated FM signal.
   - For "Positive modulation", the **video** signal must have high modulation (100% or above).
2. Put the set in the SAM mode.
3. Select via the TUNER menu, the IF-PLL OFFSET sub-menu.
4. Measure and align:
   - For "Negative modulation", on SCART pin 1 or 3 (**audio** out): Adjust IF-PLL OFFSET until the largest Signal Noise Ratio (SNR) is reached.
   - For "Positive modulation", on SCART pin 19 (**video** out): Adjust IF-PLL OFFSET until you get minimal V-sync disturbance.

8.3.2 Geometry

Notes:

- Set an **external** pattern generator to a crosshatch video signal and connect the RF output to the aerial input of the TV. Set the amplitude at least 1 mV_{RMS} (60 dBμV) and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
  Note: Do **not** use the internal test pattern from the GEOMETRY menu!
- Use the default alignment settings, but set "Brightness" to "32".
- For wide screen models, set to "wide screen" mode, for "classic" models, set to "4:3".
- After alignment, save the value(s) with the STORE command in the SAM main menu.

Service tip: When the set is equipped with a rotation coil, use this menu item to check its correct alignment. If alignment is not correct, go to the user MENU, choose FEATURES, and select ROTATION. With the use of a crosshatch test pattern, align it to a correct horizontal picture.

Alignment

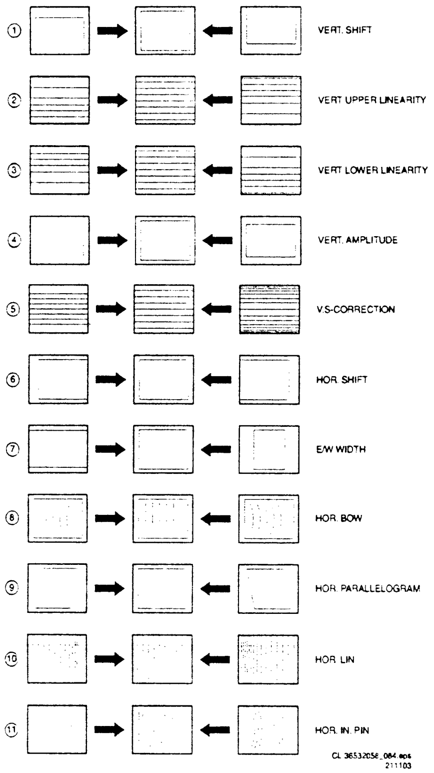

Figure 8-3 Geometry Alignments

Use the following software regulations to modify the geometry:

1. VER. SHIFT (Vertical Shift): Align for the vertical picture centre, range from -32 to +32.
2. VER. AMPL (Vertical Amplitude): Compensating for any gain error in amplifier, adjust range from -32 to +32 to the proper amplitude.
3. VER. SCOR (Vertical S-Correction): Align for equal height of the blocks in the top, the bottom and the middle, range from -63 to +63.
4. VER. U_LIN (Vertical Upper Linearity): Align for linearity of the upper screen, range from -63 to +63.
5. VER. L_LIN (Vertical Lower Linearity): Align for linearity of the lower screen, range from -63 to +63.
6. HOR. SHIFT (Horizontal Shift): Adjust for the horizontal centre of the screen, range from -127 to +128.

Next step is to align the East/West geometry.

1. First, set the parameters EW_5 and EW_6 to "0"
2. EW. WIDTH (East-West Width): This sets the (overall) horizontal size of the picture on the screen. Range from -63 to +63 (with the following EW alignments, these lines can be straightened).
3. EW_1 (East-West parameter 1): Has effect on the length of the upper part of the vertical E/W lines.
4. EW_2 (East-West parameter 2): Has effect on the length of the vertical E/W lines just below EW_1.
5. EW_3 (East-West parameter 3): Has effect on the length of the vertical E/W lines just below EW_2.
6. EW_4 (East-West parameter 4): Has effect on the length of the vertical E/W lines just below EW_3.
7. EW_5 (East-West parameter 5): Has effect on the length of the vertical E/W lines just below EW_4.
8. EW_6 (East-West parameter 6): Has effect on the length of the vertical E/W lines just below EW_5.
9. EW_7 (East-West parameter 7): Has effect on the length of the vertical E/W lines just below EW_6.
10. EW_8 (East-West parameter 8): Has effect on the length of the vertical E/W lines just below EW_7.
11. EW_9 (East-West parameter 9): Has effect on the length of the vertical E/W lines just below EW_8.
12. EW_10 (East-West parameters 10): Has effect on the length of the lowest part of the vertical E/W lines.
13. HOR. BOW (Horizontal Bow): Align the EW parabola to be symmetrical, range from -63 to +63.
14. HOR. PARALLEL (Horizontal Parallel): Align for straight vertical lines on the picture sides, range from -63 to +63.
15. HOR. LIN (Horizontal Linearity): Align for equal width of horizontal blocks on the left, the right and the centre, range from -63 to +63.
16. HOR. SCOR (Horizontal S-correction): Align for equal height of the blocks on the left, the right and the centre, range from -63 to +63.
17. HOR. IN_PIN (Horizontal Inner Pincushion): Align for the inner straight vertical lines, range from -15 to +15.

8.3.3 White Tone

In the WHITE TONE sub menu, the colour values for the different colour temperatures can be changed.
The colour temperature mode (NORMAL, DELTA COOL, DELTA WARM) can be selected per colour (R, G, and B) with the RIGHT/LEFT cursor keys. The mode or value can be changed with the UP/DOWN cursor keys.
First, the values for the NORMAL colour temperature must be selected. Then the offset values for the DELTA COOL and DELTA WARM mode can be selected. Note that the alignment values are non-linear.

Alignment
Normally, no adjustments are needed.
If the white tone alignment values used in CSM of the the TV set do not give the required result, use the following alignment method:

1. Set the external pattern generator to a 100% white pattern, and connect its RF output to the aerial input of the TV. Set the amplitude to at least 1 mV_{RMS} (60 dBuV) and the frequency to 475.25 MHz. Use system PAL B/G if possible, otherwise match the system of your generator with the received signal in the set.
2. Set "Smart Picture" to "Natural".
3. Set "Dynamic NR" to "off".
4. Put the set in the SAM mode.
5. Select via the WHITE TONE menu, the PATTERN sub-menu.
6. Set PATTERN to "on".
7. Set NORMAL GREEN to "0".
8. Measure with the colour analyser (Minolta CA100 Colour Analyser or equivalent), calibrated with the spectra, on the centre of the screen.
9. Adjust with the cursor left/right command the Red and Blue register for the right xy-coordinates (see the table below).
10. Repeat the white tone adjustment also for the colour temperatures COOL and WARM.

Table 8-1 White tone alignment (with colour analyser)

White D mode	Temperature	DUV	x	y
Normal	8500 K	+-0.004	288 +/- 4	300 +/- 4
Cool	11500 K	+-0.005	273 +/- 5	282 +/- 5
Warm	7000 K	+-0.005	305 +/- 5	312 +/- 5

8.3.4 Sound

No adjustments needed. Use the given default values:

- PRESCALE LEVEL
  - FM: "+1".
  - NICAM: "+3".
  - EXTAM Gain: "0".
  - PIPMONO: "0".
  - ExtLR-in: "0".
- THRESHOLD LEVEL
  - Over Mod Tresh: "+3dB".
  - NIC ErrLmt_Hi: "200".
  - NIC ErrLmt_Lo: "100".
  - NoiseThres SC2: "+2".
  - NoiseHyst SC2: "+4".
- EFFECTS LEVEL
  - BMT CutOffFrq: "50Hz".
  - Incredible SND: "60%".
  - VDolby: "100%".

8.3.5 Smart Settings

No adjustments needed.

8.4 Option Settings

8.4.1 Introduction

The microprocessor communicates with a large number of I^2C ICs in the set. To ensure good communication and to make digital diagnosis possible, the microprocessor has to know which ICs to address. The presence / absence of these specific ICs (or functions) is made known by the option codes.

Notes:

- After changing the option(s), save them with the STORE command.
- All changes are disregarded when the OPTIONS submenu is left without using the STORE command.
- The new option setting is only active after the TV is switched "off" and "on" again with the Mains switch (the EAROM is then read again).

8.4.2 Changing Options

Options are used to control the presence / absence of certain features and hardware. There are two ways to change the option settings. All changes in the option settings are saved by selecting STORE and pressing the CURSOR RIGHT key. Some changes will only take affect after the set has been switched OFF and ON with the mains switch (cold start).

Changing Multiple Options by Changing Option Byte Values
Option Bytes (OB) makes it possible to set all options very fast. An option byte represents a number of different options. All options are controlled via option bytes (OB1 to OB13; each "OB" number represents 16 bits; bit numbers that are not used are omitted in the second column). Select an Option Byte you want to change with the CURSOR UP/DOWN keys, and key in the new value. See the table for more details. An explanation per option is listed in paragraph "Option Bit Definition".

Changing a Single Option
It is also possible to change an option one at a time. Therefore, select the option with the CURSOR UP/DOWN keys and change its setting with the LEFT/RIGHT keys.

8.4.3 Option Settings

In the table below, you will find the option settings.

Table 8-2 Option bit overview

Option Bytes (OB1... OB13)	Number of Bits	Decimal value	Name	Features	32PW8720/12	28PW8720/12	32PW8620/12	28PW8620/12	29PT8640/12	29PT8520/12	28PT7120/12	28PW8720/05	32PW8720/05	32PW8820/12	32PW8820/12	32PW8820/12	32PW8820/12
1	5	32	RCMX	RC for Teletext Mix Mode	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	64	EQTO	Equalizer/Tone	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	256	WSSB	Wide Screen Signal Bit	1	1	1	1	0	0	0	1	1	1	1	0	0
	12	4096	DGSC	Digital Scan	1	1	1	1	1	1	1	1	1	1	1	1	1
	14	16384	SSHT	Subtitle Shift	1	1	1	1	0	0	0	1	1	1	1	0	0
2	5	32	DBYV	Dolby Virtual	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	128	SWOF	Swoofer** (1st bit)	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	256	SWOF	Swoofer** (2nd bit)	0	0	0	0	0	0	0	0	0	0	0	0	0
	9	512	P50	P50	1	1	1	1	1	1	1	1	1	1	1	1	1
	11	2048	QPEAK	AV Sound Mode Detection	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	1	AV3	Side AV Source	1	1	1	1	1	1	1	1	1	1	1	1	1
	1	2	SCT3	Scart 3 Input	0	0	0	0	0	0	0	0	0	0	0	0	0
	8	256	ASPR	Aspect Ratio	1	1	1	1	0	0	0	1	1	1	1	0	0
	9	512	ROTI	Rotation Tilt	1	1	1	1	0	0	0	1	1	1	1	0	0
4	3	8	PITN	Philips tuner*** (1st bit)	1	1	1	1	1	1	1	1	1	1	1	1	1
	4	16	PITN	Philips tuner*** (2nd bit)	0	0	0	0	0	0	0	0	0	0	0	0	0
5	6	64	AAVL	Automatic Volume Leveller	1	1	1	1	1	1	1	1	1	1	1	1	1
6	12	4096	BASF	Bass Feature* (1st bit)	1	1	1	1	1	1	1	1	1	1	1	1	1
	13	8192	BASF	Bass Feature* (2nd bit)	0	0	0	0	0	0	0	0	0	0	0	0	0
8	4	16	PIPC	PIP control	0	0	0	0	0	0	0	0	0	1	1	1	1
	5	32	PIPT	PIP tuner	0	0	0	0	0	0	0	0	0	0	0	0	0
	6	64	W4X3	DW 4:3	0	0	0	0	0	0	0	0	0	1	1	1	1
	7	128	W169	DW 16:9	0	0	0	0	0	0	0	0	0	1	1	1	1
9	0	1	APC	Auto Picture Control (Auto TV)	1	1	1	1	1	1	1	1	1	1	1	1	1
	5	32	VMOD	Virgin Mode	0	0	0	0	0	0	0	1	1	0	0	0	0
	7	128	TIME	Timer	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	256	DNR	Dynamic Noise Reduction	1	1	1	1	1	1	1	1	1	1	1	1	1
	9	512	BBD	Black Bar Detect	1	1	1	1	0	0	0	1	1	1	1	0	0
10	5	32	UKPNP	UK plug and play	0	0	0	0	0	0	0	1	1	0	0	0	0
	6	64	DTXT	Dual Text	1	1	1	1	0	0	0	1	1	1	1	0	0
	7	128	VTXT	Video Text	1	1	1	1	0	0	0	1	1	1	1	0	0
	8	256	SBNP	Auto Standby with no picture	1	1	1	1	1	1	1	1	1	1	1	1	1
	9	512	AUSB	Auto Standby Auto On	0	0	0	0	0	0	0	0	0	0	0	0	0
	10	1024	CZOM	Continuous Zoom	1	1	1	1	0	0	0	1	1	1	1	0	0
	11	2048	HSHT	Heading Shift	1	1	1	1	0	0	0	1	1	1	1	0	0
	13	8192	HOSP	Hospitality Mode	1	1	1	1	1	1	1	1	1	1	1	1	1
	14	16384	CHLK	Child Lock	1	1	1	1	1	1	1	1	1	1	1	1	1
11	3	8	SOSD	Smart OSD	0	0	0	0	0	0	0	0	0	0	0	0	0
	9	512	T1H0	100 Page Text	0	0	0	0	0	0	0	0	0	0	0	0	0
	13	8192	FAPG	Favorite page	1	1	1	1	1	1	1	1	1	1	1	1	1
	14	16384	ACI	Automatic Channel Installation	1	1	1	1	1	1	1	1	1	1	1	1	1
12	8	256	PLST	Program List	1	1	1	1	1	1	1	1	1	1	1	1	1
	12	4096	HPMN	Headphone Menu	1	1	1	1	1	1	1	1	1	1	1	1	1
13	0	1	T2H5	250 Page Text	0	0	0	0	0	0	0	0	0	0	0	0	0
	2	4	T12H	1200 Page Text	1	1	1	1	1	1	1	1	1	1	1	1	1
	7	128	SMCK	Smart clock	1	1	1	1	1	1	1	1	1	1	1	1	1
	8	256	ATS	Automatic Tuning System	1	1	1	1	1	1	1	1	1	1	1	1	1
	12	4096	SSD	SplitScreenDemo	1	1	1	1	1	1	1	1	1	1	1	1	1

8.4.4 Option Bit Definition

Sources

AV3: Side AV source.
Function: Disable/Enable side AV source.
Values: OFF= Disabled, side AV source is not available. ON= Enabled, side AV source is available.

SCT3: SCART 3 input.
Function: Disable/Enable Scart3 input.
Values: OFF= Disabled. ON= Enabled.

Video

ASPR: Aspect Ratio Setting.
Function: Select between 4 by 3 or 16 by 9 set.
Values: OFF= 4 by 3 set. ON= 16 by 9 set.

W4X3: Screen size 4x3.
Function: Disable/Enable Screen size 4x3.
Values: OFF= Disabled. Screen size 4x3 is not available. ON= Enabled. Screen size 4x3 is available.

W169: Screen size 16x9.
Function: Disable/Enable Screen size 16x9.
Values: OFF= Disabled. Screen size 16x9 is not available. ON= Enabled. Screen size 16x9 is available.

DNR: Dynamic Noise Reduction.
Function: Disable/Enable (Dynamic) Noise Reduction function.
Values: OFF=Disabled. ON= Enabled.

BBD: Black Bar Detection.
Function: Disable/Enable Black Bar Detection.
Values: OFF=Disabled, Black Bar Detection not available. ON= Enabled, Black Bar Detection available.
Note: The Auto Screen Fit will not be included in the picture size loop when BBD is OFF (WS = 1; 4 : 3 = 0).

CZOM: Continuous Zoom.
Function: Disable/Enable Continuous Zoom.
Values: OFF=Disabled. ON= Enabled (WS = 1; 4 : 3 = 0).

HSHT: Heading Shift.
Function: Disable/Enable Heading Shift.
Values: OFF=Disabled. ON= Enabled (WS = 1; 4 : 3 = 0).

SSHT: Subtitle Shift.
Function: Disable/Enable Subtitle Shift.
Values: OFF=Disabled. ON= Enabled (WS = 1; 4 : 3 = 0).

APC: Auto Picture Control (Auto TV).
Function: Disable/Enable Auto picture control.
Values: OFF= Disabled. ON= Enabled.

WSSB: Wide Screen Signalling Bit.
Function: Disable/Enable Wide screen Signalling bit function.
Values: OFF= Disabled. ON= Enabled (WS = 1; 4 : 3 = 0).

ROTI: Rotation Tilt.
Function: Change the tilt level of picture tube.
Values: OFF= Disabled, menu item ROTATION is not available. ON= Enabled, menu item ROTATION is available (WS = 1; 4 : 3 = 0).

DGSC: Digital Scan.
Function: Enable/Disable the Digital Scan in the DIGITAL OPT menu.
Values: OFF= Disabled, menu item DIG SCAN is not available. ON= Enabled, menu item DIG SCAN is available.

SSD: Split Screen Demo.
Function: Disable/Enable Split Screen Demo.
Values: OFF= Disabled. Split Screen Demo is not available. ON= Enabled. Split Screen Demo is available.

Audio

AAVL: Automatic Volume Level control.
Function: Disable/Enable automatic volume leveller function.
Values: OFF=Disabled, menu item AVL is not available. ON= Enabled, menu item AVL is available.

DBYV: Dolby Virtual.
Function: Select surround setting.
Values: OFF= Disabled, DOLBY VIRTUAL setting is not available. ON= Enabled, DOLBY VIRTUAL setting is available.
Note: Incredible surround & Dolby virtual are mutually exclusive.

EQTO: Equalizer or Tone control.
Function: Selection between Equalizer and Tone control (Bass and Treble).
Values: OFF= Tone control (Bass and Treble). ON= Equalizer.
Note: Equalizer and Tone (Bass and treble) control are mutually exclusive.

QPEAK: AV Sound Mode detection.
Function: The current Sound Mode detection in AV is not working correctly. The optimal threshold value for the correct sound mode detection is still being investigated. Therefore, this is needed to disable the Sound Mode detection in AV until the correct threshold is identified.
Value: OFF= Disabled, AV sound auto detection is not available. ON= Enabled. AV sound auto detection is available.

BASF: Bass Feature.
Function: Disable/Enable Bass Feature.
Values: OFF= Disabled. Bass Feature is not available. ON= Enabled. Bass Feature is available.
Note: For this feature, 2 bits are used: bit 5 and bit 4 of NVM address 21_{hex}. The following combinations are possible:
00 = Disable DBE and DUB;
01 = Enable DBE (bit 5 @ 21_{hex} = 0; bit 4 @ 21_{hex}= 1);
10 = Enable DUB (bit 5 @ 21_{hex}= 1; bit 4 @ 21_{hex}= 0);
11 = not used.

HPMN: Headphone menu.
Function: Disable/Enable Headphone menu.
Values: OFF= Disabled. Headphone menu is not available. ON= Enabled. Headphone menu is available.

SWOF: Subwoofer.
Function: Disable/Enable Subwoofer.
Values: OFF= Disabled. Subwoofer is not available. ON= Enabled. Subwoofer is available.
Note: For this feature, 2 bits are used: bit 1 of NVM address 19_{hex} and bit 7 of NVM address 18_{hex}. The following combinations are possible:
00 = None;
01 = Subwoofer (bit 1@19_{hex} = 0; bit 7@18_{hex} = 1);
10 = Woox (bit 1@19_{hex} = 1; bit 7@18_{hex} = 0);
11 = not used.

Tuning

PITN: Philips Tuner.
Function: Choose the tuner type that is configured in the hardware.
Values: OFF= Disabled, Other (non-Philips) tuner is used. ON= Enabled, Philips compatible tuner is used.
Note: For this feature, 2 bits are used: bit 4 and bit 3 of NVM address $1C_{hex}$. The following combinations are possible:
00 = Other tuner;
11 = Philips tuner (bit 4 and bit 3@ $1C_{hex}$ = 1).

Installation

ACI: Automatic Channel Installation.
Function: Disable/Enable automatic channel installation.
Values: OFF= Disabled Automatic Channel Installation. ON= Enabled Automatic Channel Installation.
Note: Download present program when ACI is ON.

ATS: Automatic Tuning System.
Function: Disable/Enable automatic tuning system.
Values: OFF= Disabled, automatic tuning system is ignored. ON= Enabled Automatic Tuning System, sort the program in an ascending order starting from Program 1.
Note: Sort the program in an ascending order starting from Program 1 when ATS is ON.

VMOD: Virgin Mode.
Function: Disable/Enable virgin mode.
Values: OFF= Disabled, cannot access virgin mode. ON= Enabled, can access virgin mode.
Note: Plug and Play menu item will be displayed to perform installation at the initial start up of the TV when MOD is ON and after installation is done, VMOD will be automatically set to OFF.

UKPNP: UK Plug and Play.
Function: Disable/Enable UK's default Plug and Play setting.
Values: OFF= Disabled, UK's default Plug and Play setting is not available. ON= Enabled, UK's default Plug and Play setting is available.
Note: When UKPNP and VMOD are ON at the initial set-up, LANGUAGE= ENGLISH, COUNTRY= GREAT BRITAIN and after auto store is complete, VMOD will be set automatically to OFF while UKPNP remain ON.

Program Selection
PLST: Program List.
Function: Disable/Enable Program List function.
Values: OFF= Disabled, the access to Program List Command is ignored. ON= Enabled, the access to Program List Command is processed.

Picture In Picture
PIPC: PIP Control.
Function: Disable/Enable submenu to adjust PIP Picture settings
Values: OFF= Disabled, PIP feature is not available. ON= Enabled, PIP feature is available
Note: PIP is present in FEATURES submenu when PIPC is ON. When PIPC is switched OFF, bits PIPT, W4X3, and W169 must be automatically set to OFF.

PIPT: PIP Tuner.
Function: To determine the presence of second tuner.
Values: OFF= Disabled, second tuner is not available. ON= Enabled, second tuner is available.
Note: When PIPC is switched OFF, bits PIPT, W4X3, and W169 must be automatically set to OFF.

Clock
SMCK: Smart Clock/Autochron.
Function: Disable/Enable smart clock/AutoChron function.
Values: OFF= Disabled, menu item smart clock function not available. ON= Enabled, menu item smart clock function available.
Note: For NAFTA, AUTOCHRON is present in INSTALL submenu when SMCK is ON. For AP-PAL and EUROPE, Smart clock downloaded from Teletext is enabled when SMCK is ON.

TIME: Timer.
Function: Disable/Enable menu item TIMER.
Values: OFF= Disabled, menu item TIMER not available. ON= Enabled, menu item TIMER available.
Note: TIMER submenu is present in FEATURES submenu when TIME is ON.

Data Service
DTXT: Dual Text.
Function: Disable/Enable Dual Text.
Values: OFF= Disabled. Dual text is not available. ON= Enabled. Dual text is available (WS = 1; 4 : 3 = 0).

RCMX: RC for Teletext Mix Mode.
Function: Disable/Enable RC for Teletext Mix mode support.
Values: OFF= Disabled. RC for mix mode is not available. ON= Enabled, RC for mix mode is available.

FAPG: Favourite Page.
Function: Disable/Enable favourite page in Teletext mode.
Values: OFF= Disabled favourite page in Teletext mode. ON= Enabled favourite page in Teletext mode.

T1H0: 100-Page Text.
Function: Disable/Enable 100-page Text.
Values: OFF= Disabled. 100-page text is not available. ON= Enabled, 100-page text is available.

T2H5: 250-Page Text.
Function: Disable/Enable 250-page Text.
Values: OFF= Disabled. 250-page text is not available. ON= Enabled, 250-page text is available.

T12H: 1200-Page Text.
Function: Disable/Enable 1200-page Text.
Values: OFF= Disabled. 1200-page text is not available. ON= Enabled, 1200-page text is available.

VTXT: Video Text.
Function: Disable/Enable Video Text.
Values: OFF= Disabled. Video text is not available. ON= Enabled. Video text is available (WS = 1; 4 : 3 = 0).

Lock Features
CHLK: Child Lock.
Function: Disable / Enabled function to block/unblock channels.
Values: OFF= Disabled. ON= Enabled.

OSD/Menu Related
SOSD: Smart OSD.
Function: Disable/Enable full display of SMART SOUND and SMART PICTURE OSD.
Values: OFF= Disabled, full display of SMART SOUND and SMART PICTURE OSD not available. ON= Enabled, full display of SMART SOUND and SMART PICTURE OSD available.

Miscellaneous
HOSP: Hospitality mode.
Function: Disable/Enable Hospitality mode.
Values: OFF= Disabled. Hospitality mode is not available. ON= Enabled. Hospitality mode is available.

SBNP: Auto Standby with No Picture.
Function: Disable/Enable automatic switch to standby after 15 minutes when no ident.
Values: OFF= Disabled, no automatic switch to standby. ON= Enabled, set switches to standby after 15 minutes when no ident.

AUSB: Auto Standby Auto On.
Function: Disable/Enable automatic switch to standby if no RC or local keyboard response after 4 hours provided that the set is ON from standby mode by the timer.
Values: OFF= Disabled, no automatic switch to standby. ON= Enabled, set switches to standby after 4 hours.

P50: P50 (Easylink).
Function: Disable/Enable P50 feature.
Values: OFF= Disabled, P50 feature not available. ON= Enabled, P50 feature is available.

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9. Circuit Descriptions, Abbreviation List, and IC Data Sheets

Index of this chapter:
9.1 Introduction
9.2 Deflection
9.3 Software Upgrading
9.4 Abbreviation List
9.5 IC Data Sheets

Note: Only **new** circuits (circuits that have not been published recently) are described. For the other circuits, see the A02E manual.

9.1 Introduction

The ES1E is a flat screen type CRT TV set for the year 2005 - 2006. It is based on the SSB of the A02, but the LSP, called Esplanade, has been redesigned in order to reduce the "hot" part of the chassis. In this chapter, only the deflection circuits, the correction circuits and the X-ray protection circuits are described.

9.1.1 Large Signal Panel

The Esplanade chassis has a full sized LSP, which is has been redesigned with respect to the previous A02 chassis in order to reduce the "hot" parts of the circuit.

The main functionalities of the LSP are:
- Supply,
- Deflection,
- Sound amplification.

The LSP (single sided) is built up very conventional, with hardly any surface mounted components on the copper side.

9.2 Deflection

Deflection Principle Diagram ES1E

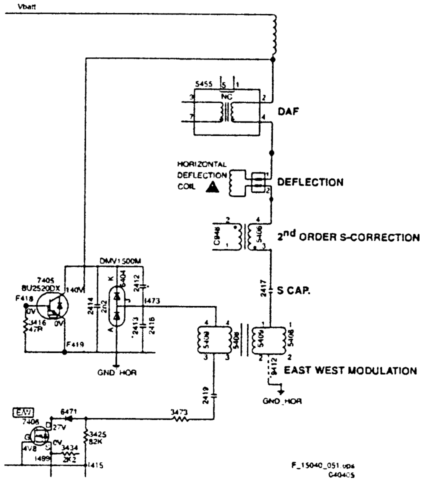

Figure 9-1 Deflection Principle

3457	3198 031 01520	1.2kΩ 5% 0.01W 0402
3480	3198 031 02720	2.7kΩ 5% 0.01W 0402
3481	3198 031 02720	2.7kΩ 5% 0.01W 0402
3482	3198 031 04720	4.7kΩ 5% 0402
3483	3198 031 08220	8.2kΩ 5% 0.5W
3484	3198 031 04720	4.7kΩ 5% 0402
3485	3198 031 08220	8.2kΩ 5% 0.5W
3501	4822 117 13606	10kΩ 5% 0.01W 0402
3502	4822 117 13606	10kΩ 5% 0.01W 0402
3503	4822 117 13606	10kΩ 5% 0.01W 0402
3504	4822 117 13606	10kΩ 5% 0.01W 0402
3507	4822 117 13606	10kΩ 5% 0.01W 0402
3508	3198 031 04720	4.7kΩ 5% 0402
3509	3198 031 02720	2.7kΩ 5% 0.01W 0402
3510	3198 031 02720	2.7kΩ 5% 0.01W 0402
3511	4822 117 13546	47Ω 5% 0402
3512	4822 117 13546	47Ω 5% 0402
3513	3198 031 02720	2.7kΩ 5% 0.01W 0402
3515	3198 031 02720	2.7kΩ 5% 0.01W 0402
3518	4822 117 13601	22kΩ 5% 0402
3523	4822 117 13606	10kΩ 5% 0.01W 0402
3530	4822 117 11297	100kΩ 5% 0.1W
3547	3198 031 03390	33Ω 1% 0402
3550	3198 031 04720	4.7kΩ 5% 0402
3557	4822 117 13546	47Ω 5% 0402
3563	4822 117 13606	10kΩ 5% 0.01W 0402
3564	4822 117 13606	10kΩ 5% 0.01W 0402
3565	4822 117 13606	10kΩ 5% 0.01W 0402
3570	4822 117 13602	2.2kΩ 5% 0.01W 0402
3571	3198 031 02720	2.7kΩ 5% 0.01W 0402
3572	4822 117 13606	10kΩ 5% 0.01W 0402
3581	4822 117 13545	100Ω 1% 0402
3582	4822 117 13606	10kΩ 5% 0.01W 0402
3583	3198 031 01830	18kΩ 5% 0.01W 0402
3586	4822 117 13601	22kΩ 5% 0402
3590	4822 117 13548	1kΩ 5% 0402
3651	5322 117 13036	1.2kΩ 1% 0.063W 0603
3652	5322 117 13052	2.7kΩ 1% 0.063W 0603
3737	3198 031 03390	33Ω 1% 0402
3904	4822 117 13605	Jumper 0402
3909	4822 117 13545	100Ω 1% 0402
3911	4822 117 13545	100Ω 1% 0402
3918	4822 117 13545	100Ω 1% 0402
3919	4822 117 13545	100Ω 1% 0402
3928	4822 117 13545	100Ω 1% 0402
3929	4822 117 13545	100Ω 1% 0402
3936	4822 117 13545	100Ω 1% 0402
3938	4822 117 13545	100Ω 1% 0402
3950	4822 117 13545	100Ω 1% 0402
3951	4822 117 13545	100Ω 1% 0402
3962	4822 117 13545	100Ω 1% 0402
3963	4822 117 13545	100Ω 1% 0402
3964	4822 117 13545	100Ω 1% 0402
3975	4822 117 13545	100Ω 1% 0402
3976	4822 117 13545	100Ω 1% 0402
3977	4822 117 13545	100Ω 1% 0402
3978	4822 117 13545	100Ω 1% 0402
3979	4822 117 13545	100Ω 1% 0402
3980	4822 117 13545	100Ω 1% 0402
4xxx	4822 117 13605	Jumper 0402

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5060	2422 549 44197	Bead 220Ω at 100MHz
5061	2422 549 44197	Bead 220Ω at 100MHz
5062	2422 549 44197	Bead 220Ω at 100MHz
5063	2422 549 44197	Bead 220Ω at 100MHz
5101	4822 157 71303	0.39µH 10% 0805
5102	2422 549 44197	Bead 220Ω at 100MHz
5112	2422 549 44197	Bead 220Ω at 100MHz
5134	2422 549 44197	Bead 220Ω at 100MHz
5135	2422 549 44197	Bead 220Ω at 100MHz
5150	2422 549 44197	Bead 220Ω at 100MHz
5151	2422 549 44197	Bead 220Ω at 100MHz
5152	2422 549 44197	Bead 220Ω at 100MHz
5281	2422 549 44197	Bead 220Ω at 100MHz
5282	2422 549 44197	Bead 220Ω at 100MHz
5283	2422 549 44197	Bead 220Ω at 100MHz
5285	2422 549 44197	Bead 220Ω at 100MHz
5300	2422 549 44197	Bead 220Ω at 100MHz
5307	4822 051 20008	Jumper 0805
5317	4822 051 20008	Jumper 0805
5327	4822 051 20008	Jumper 0805
5328	4822 051 20008	Jumper 0805
5342	2422 549 44197	Bead 220Ω at 100MHz
5343	2422 549 44197	Bead 220Ω at 100MHz
5344	2422 549 44197	Bead 220Ω at 100MHz
5345	2422 549 44197	Bead 220Ω at 100MHz
5450	2422 549 44197	Bead 220Ω at 100MHz
5452	2422 549 44197	Bead 220Ω at 100MHz
5480	2422 549 44197	Bead 220Ω at 100MHz
5570	2422 549 44197	Bead 220Ω at 100MHz
5583	2422 549 44197	Bead 220Ω at 100MHz
5600	4822 157 11716	Bead 30Ω at 100MHz
5601	2422 549 44197	Bead 220Ω at 100MHz
5651	2422 535 94134	10µH 20% 0805
5654	4822 157 11258	1µH 20% NLC322522T
5659	4822 157 71334	0.68µH
5730	2422 549 44197	Bead 220Ω at 100MHz
5731	2422 549 44197	Bead 220Ω at 100MHz
5792	2422 549 44197	Bead 220Ω at 100MHz

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6101	4822 130 11525	1SS356
6301	4822 130 11397	BAS316
6327	9322 102 64685	UDZ2.7B
6341	4822 130 11397	BAS316
6353	5322 130 34337	BAV99
6365	5322 130 34337	BAV99
6367	9340 548 67115	PDZ22B
6368	4822 130 11397	BAS316
6381	5322 130 34337	BAV99
6382	4822 130 11594	BZX284-C47
6384	9340 548 67115	PDZ22B
6385	4822 130 11397	BAS316
6397	9340 548 69115	PDZ27B
6398	4822 130 11397	BAS316
6480	9340 548 61115	PDZ12B
6481	9340 548 61115	PDZ12B
6651	9322 128 70685	SMSS14

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7060	9340 425 30115	BC847BPN
7062	4822 130 60373	BC856B
7063	4822 130 60373	BC856B
7100	9352 712 54557	PNX3000HL/N1
7101	3198 010 42310	BC847BW
7150	9340 425 20115	BC847BS
7300	9352 735 54557	PNX3002E/N302
7301	4822 130 60373	BC856B
7302	4822 130 60373	BC856B
7303	4822 130 60373	BC856B
7304	3198 010 42310	BC847BW
7310	9340 425 30115	BC847BPN
7320	9340 425 30115	BC847BPN
7330	9340 425 30115	BC847BPN
7346	4822 130 60373	BC856B
7356	4822 130 60373	BC856B
7365	5322 130 60159	BC846B
7382	4822 130 60373	BC856B
7383	9340 425 30115	BC847BPN
7393	3198 010 42310	BC847BW
7432	9340 425 30115	BC847BPN
7433	9340 425 30115	BC847BPN
7480	4822 209 33165	TDA1308T/N1
7525	9322 130 41668	M24C64-WMN6
7581	9352 691 56115	NE56610-45GW
7650	9322 170 61668	CS51033YDR8
7651	9322 170 87668	STS5PF30L
7730	9322 180 88668	K4S641632F-TC75
7790	9322 199 76668	M58LW032C90N1

Side I/O Panel [D]

Various

0240	2422 025 12485	Connector 11p m
0241	4822 267 10734	Connector 5p m
0242	4822 267 10734	Connector 5p m
1254	4822 267 31014	Socket headphone
1255	4822 265 11606	Connector 3p
1256	2422 026 04926	Socket SVHS 4p f

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2286	4822 122 33642	150pF 5% 50V
2288	4822 122 33642	150pF 5% 50V
2292	5322 122 32311	470pF 10% 100V
2294	5322 122 32311	470pF 10% 100V
2296	4822 122 30103	22nF 80% 63V
2297	4822 122 30103	22nF 80% 63V

-WW-

3285	4822 116 52201	75Ω 5% 0.5W
3286	4822 116 52176	10Ω 5% 0.5W
3287	4822 116 52201	75Ω 5% 0.5W
3288	4822 116 52176	10Ω 5% 0.5W
3289	4822 116 52249	1.8kΩ 5% 0.5W
3291	4822 050 11002	1kΩ 1% 0.4W
3292	4822 117 10834	47kΩ 1% 0.1W
3293	4822 050 11002	1kΩ 1% 0.4W
3294	4822 117 10834	47kΩ 1% 0.1W
3295	4822 116 52276	3.9kΩ 5% 0.5W
3296	4822 117 10833	10kΩ 1% 0.1W
3297	4822 117 10833	10kΩ 1% 0.1W
4xxx	4822 051 20008	Jumper 0805

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6291	9340 548 61115	PDZ12B
6292	9340 548 61115	PDZ12B
6293	9340 548 61115	PDZ12B
6294	9340 548 61115	PDZ12B
6296	9340 548 61115	PDZ12B
6297	9340 548 61115	PDZ12B

Top Control Panel [E]

Various

0135	3104 311 04671	Cable 3p/1200/3p
0215	2422 025 16601	Connector 3p m
1091	4822 276 13775	Switch
1092	4822 276 13775	Switch
1093	4822 276 13775	Switch
1094	4822 276 13775	Switch

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2010	4822 122 33177	10nF 20% 50V

-WW-

3088	4822 051 30008	Jumper 0603
3089	4822 051 30008	Jumper 0603
3091	4822 051 30561	560Ω 5% 0.062W
3092	4822 051 30391	390Ω 5% 0.062W
3093	4822 051 30561	560Ω 5% 0.062W
3094	4822 051 30271	270Ω 5% 0.062W
3095	4822 051 30332	3.3kΩ 5% 0.062W
3096	4822 051 30152	1.5kΩ 5% 0.062W
4092	4822 051 30008	Jumper 0603

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6092	4822 130 10654	BAT254

CRT Panel [F]

Various

0032	4822 492 70788	IC clamp
1298	2422 500 80063	Connector CRT 10p f
1424	2422 025 11244	Connector 7p m
1434	4822 267 10973	Connector 1p m
1483	4822 267 10735	Connector 3p m
1940	2422 025 12485	Connector 11p m
8483	3104 311 03111	Cable 3p/340/3p ferrite

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2300	4822 124 40764	22µF 100 V
2301	4822 124 40196	220µF 20% 16V
2304	4822 121 41856	22nF 5% 250V
2306	2238 586 59812	100nF 20-80% 50V 0603
2307	4822 121 41856	22nF 5% 250V
2309	3198 017 42230	22nF 50V
2313	4822 124 12373	47µF 20% 250V
2315	5322 126 11583	10nF 10% 50V 0603
2316	4822 121 40518	100nF 10% 250V
2318	5322 122 32654	22nF 10% 63V
2319	4822 122 30043	10nF 80% 63V
2320	2238 586 59812	100nF 20-80% 50V 0603
2324	5322 121 44356	4.7nF 5% 2kV
2325	2238 586 59812	100nF 20-80% 50V 0603
2330	4822 126 13879	220nF 20% 16V
2338	2238 786 19856	330nF 16V 0603
2409	4822 051 30008	Jumper 0603
2410	3198 017 44740	470nF 10V 0603
2411	4822 126 14585	100nF 10% 50V
2420	4822 051 30008	Jumper 0603

-WW-

3300	4822 052 10109	10Ω 5% 0.33W
3301	4822 053 12103	10K00 5% 3W
3302	4822 051 30681	680Ω 5% 0.062W

3303	4822 051 30682	6.8kΩ 5% 0.062W
3304	4822 051 10102	1kΩ 2% 0.25W
3306	4822 117 13608	4.7Ω 5% 0603 0.62W
3307	4822 051 30109	10Ω 5% 0.062W
3308	4822 051 30563	56kΩ 5% 0.062W
3310	4822 051 10102	1kΩ 2% 0.25W
3311	4822 051 30181	180Ω 5% 0.062W
3312	4822 051 30222	2.2kΩ 5% 0.062W
3316	4822 051 30563	56kΩ 5% 0.062W
3318	4822 117 12971	15Ω 5% 0.62W 0603
3319	4822 051 30102	1kΩ 5% 0.062W
3323	4822 050 24708	4.7Ω 1% 0.6W
3324	4822 051 30221	220Ω 5% 0.062W
3329	4822 050 24708	4.7Ω 1% 0.6W
3334	4822 050 11002	1kΩ 1% 0.4W
3335	4822 051 30271	270Ω 5% 0.062W
3336	4822 051 30271	270Ω 5% 0.062W
3337	4822 051 30271	270Ω 5% 0.062W
3338	3198 013 01020	1kΩ 2% 0.5W
3339	3198 013 01020	1kΩ 2% 0.5W
3340	3198 013 01020	1kΩ 2% 0.5W
3341	2306 207 03151	150Ω 5% 0.5W
3342	4822 116 83883	470Ω 5% 0.5W
3345	4822 116 52191	33Ω 5% 0.5W
3347	3198 013 01520	1.5kΩ 2% 0.5W
3349	3198 013 01020	1kΩ 2% 0.5W
3350	4822 116 83883	470Ω 5% 0.5W
3351	4822 116 83883	470Ω 5% 0.5W
3352	4822 116 83883	470Ω 5% 0.5W
3354	4822 051 30222	2.2kΩ 5% 0.062W
3355	4822 117 13608	4.7Ω 5% 0603 0.62W
3356	4822 051 10102	1kΩ 2% 0.25W
3357	4822 117 13608	4.7Ω 5% 0603 0.62W
3370	4822 117 13016	VDR 1mA/50V
3371	4822 051 30472	4.7kΩ 5% 0.062W
3401	4822 116 52175	100Ω 5% 0.5W
3403	4822 052 11228	2R20 5% 0,5W
3404	4822 052 11228	2R20 5% 0,5W
3410	4822 051 30103	10kΩ 5% 0.062W
3411	4822 051 30103	10kΩ 5% 0.062W
3412	2322 750 61509	15Ω 5% 1206 fusible
3413	4822 051 30181	180Ω 5% 0.062W
3414	4822 051 30109	10Ω 5% 0.062W
3417	4822 051 30109	10Ω 5% 0.062W
3418	4822 051 30181	180Ω 5% 0.062W
3420	4822 051 30008	Jumper 0603
3427	4822 051 30008	Jumper 0603
3999	4822 051 30152	1.5kΩ 5% 0.062W
9402	4822 051 20008	Jumper 0805
9405	4822 051 30008	Jumper 0603

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5300	3104 308 20571	Transf. S13974-03
5400	4822 157 11869	33µH 10%
5401	4822 157 71334	0.68µH

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6300	4822 130 83757	BAS216
6301	4822 051 20008	Jumper 0805
6305	9340 553 52115	BAS321
6306	9340 553 52115	BAS321
6307	9340 553 52115	BAS321
6310	4822 130 11397	BAS316
6311	4822 130 11397	BAS316
6312	4822 130 11397	BAS316
6313	4822 130 11397	BAS316
6314	4822 130 11397	BAS316

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7300	5322 130 42718	BFS20
7301	5322 130 42718	BFS20
7302	5322 130 62804	BCP53
7303	5322 130 63033	BCP56
7304	4822 130 60383	BF824
7307	9352 561 40112	TDA6108
7308	5322 130 60159	BC846B

DC Shift Panel [G]

Various

0317	4822 265 20723	Connector 2p m
0318	4822 265 20723	Connector 2p m
1430	2422 086 10581	Fuse 400mA 65V
8317	3104 311 01421	Cable 2p3/220/2p3 Wh

⊣⊢

2430	4822 122 31177	470pF 10% 500V
2431	4822 122 31177	470pF 10% 500V

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5430	3128 138 38911	DC-shift coil CU15

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6432	9340 317 00133	BYD33V
6433	9340 317 00133	BYD33V

DAF + 2nd order [I]

Various

0034	3104 304 23041	DAF bracket EMGS
1417	4822 265 20723	Connector 2p m
1418	2422 025 16374	Connector 2p m
1419	4822 265 20723	Connector 2p m
1497	4822 267 10973	Connector 1p m
8418	3104 311 01951	Cable 2p3/560/2p4 Bk

⊣⊢

2800	2222 375 90498	470pF 5% 2kV
2821	2222 479 90166	68nF 5% 400V
2890	2222 375 90276	220pF 5% 2kV

-WW-

3898	4822 116 21211	VDR 420V
3899	4822 116 21211	VDR 420V

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5800	2422 531 02437	Transformer S21975-03
5801	2422 531 02435	Transformer C948-02
5801	8228 001 34391	Driver Transformer CU15

Front Interface Panel [J]

Various

0157	3104 311 02421	Cable 5p/480/5p
0177	3104 311 03011	Cable 2p/340/2p Bk
0201	2422 025 16268	Connector 2p m
0202	2422 025 16268	Connector 2p m
0203	2422 025 06353	Connector 5p m
1910	9322 127 54667	TSOP1836UH1
1951	2422 128 02972	Mains switch

⊣⊢

2930	4822 124 41584	100µF 20% 10V

-WW-

3957	4822 053 21335	3.3MΩ 5% 0.5W
3966	4822 053 21335	3.3MΩ 5% 0.5W
3978	4822 051 30008	Jumper 0603
3981	4822 051 30681	680Ω 5% 0.062W
3982	4822 116 52219	330Ω 5% 0.5W
4903	4822 051 30008	Jumper 0603

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6901	9322 050 99682	LTL-10224WHCR

3992	4822 117 10353	150Ω 1% 0.1W
3993	4822 116 83868	150Ω 5% 0.5W
3994	4822 051 10102	1kΩ 2% 0.25W
3994	4822 117 11373	100Ω 1% 0805
3995	4822 051 10102	1kΩ 2% 0.25W
3995	4822 117 11373	100Ω 1% 0805
3996	4822 117 10353	150Ω 1% 0.1W
3997	4822 117 10353	150Ω 1% 0.1W
4xxx	4822 051 30008	Jumper 0603
9xxx	4822 051 20008	Jumper 0805
9xxx	4822 051 30008	Jumper 0603

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5100	3104 308 20431	Transformer BS25126-03
5101	4822 526 10704	Bead 45Ω at 50MHz
5102	2422 535 94639	10μH 20%
5103	4822 526 10704	Bead 45Ω at 50MHz
5104	4822 157 11411	Bead 83Ω at 100MHz
5105	2422 535 94632	1μH 30%
5106	4822 157 11716	Bead 30Ω at 100MHz
5107	4822 157 11716	Bead 30Ω at 100MHz
5108	4822 526 10704	Bead 45Ω at 50MHz
5110	4822 526 10704	Bead 45Ω at 50MHz
5111	4822 157 11411	Bead 83Ω at 100MHz
5113	4822 157 11411	Bead 83Ω at 100MHz
5130	4822 157 11411	Bead 83Ω at 100MHz
5400	4822 157 11869	33μH 10%
5401	2422 536 00059	12μH 10%
5402	3198 018 21510	150μH 10%
5410	3128 138 39091	Transformer CE165T
5411	4822 157 71097	0.56μH 10%
5421	3104 308 20471	Linearity coil 28"/29"
5421	3104 308 20591	Linearity coil 32"
5422	2422 531 02357	Bridge coil W7132-004Y 29"
5422	4822 146 11137	Bridge coil W7131-003 28"/32"
5423	4822 157 71097	0.56μH 10%
5425	4822 157 11411	Bead 83Ω at 100MHz
5426	4822 157 11411	Bead 83Ω at 100MHz
5430	3104 308 20491	LOT 1392.9014A
5461	4822 157 11411	Bead 83Ω at 100MHz
5463	4822 157 11411	Bead 83Ω at 100MHz
5465	4822 157 11411	Bead 83Ω at 100MHz
5467	4822 157 11411	Bead 83Ω at 100MHz
5469	4822 157 11411	Bead 83Ω at 100MHz
5503	2422 549 44877	Filter 45mH DMF2845H
5505	4822 157 11411	Bead 83Ω at 100MHz
5506	2422 531 02575	Transformer SMT BS30029-01
5506	2422 531 02635	Transformer SMT SS30327-01 B
5507	4822 157 11411	Bead 83Ω at 100MHz
5511	3104 308 20511	Filter mains 40mH
5515	4822 157 11869	33μH 10%
5517	4822 157 11411	Bead 83Ω at 100MHz
5518	4822 526 10704	Bead 45Ω at 50MHz
5519	4822 157 11716	Bead 30Ω at 100MHz
5520	4822 157 11411	Bead 83Ω at 100MHz
5620	4822 157 11771	0.09μH 10%
5621	3104 308 20571	Transf. S13974-03
5901	4822 157 11299	10μH 5%
5902	3198 018 71010	100μF 10%
5903	4822 157 10359	33μH 10%
5904	4822 157 11411	Bead 83Ω at 100MHz

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6080	4822 130 11397	BAS316
6082	4822 130 80622	BAT54
6103	4822 130 41601	BYV95A
6104	9340 548 67115	PDZ22B
6105	4822 130 34281	BZX79-B15
6106	3198 010 52290	BZX79-B22
6108	4822 130 80622	BAT54
6109	4822 130 31083	BYW55
6110	4822 130 41487	BYV95C
6111	9322 161 78682	SB360L-7024
6112	4822 130 11551	UDZS10B
6115	4822 130 80622	BAT54
6120	4822 130 30621	1N4148
6121	4822 130 30621	1N4148
6122	3198 010 53980	BZX79-B3V9
6130	4822 130 11596	BYW29EX-200
6132	9322 171 80685	BZX384-B6V8
6133	4822 130 11397	BAS316
6134	4822 130 11397	BAS316
6141	4822 130 11522	UDZ15B
6142	4822 130 80622	BAT54
6144	4822 130 11397	BAS316
6147	4822 130 34278	BZX79-B6V8
6148	5322 130 31938	BYV27-200
6149	4822 130 11397	BAS316
6200	9340 548 71115	PDZ33B
6202	4822 130 11397	BAS316
6400	4822 130 41601	BYV95A
6402	4822 130 11397	BAS316
6405	4822 130 34383	BZX79-B47
6406	4822 130 11397	BAS316
6407	4822 130 11397	BAS316
6408	4822 130 41601	BYV95A
6421	4822 130 10753	BY359X-1500
6422	4822 130 10218	BY229X-800
6442	4822 130 11522	UDZ15B
6455	4822 130 11397	BAS316
6456	5322 130 34337	BAV99
6457	9322 102 64685	UDZ2.7B
6458	3198 020 55680	BZX384-C5V6
6460	4822 130 41487	BYV95C
6462	9340 559 53112	BYW95C-24
6464	9340 559 53112	BYW95C-24
6480	4822 130 31607	RGP10D
6481	4822 130 11522	UDZ15B
6482	4822 130 11397	BAS316
6483	4822 130 80622	BAT54
6493	4822 130 80622	BAT54
6499	4822 130 11551	UDZS10B
6505	4822 130 34281	BZX79-B15
6506	4822 130 80622	BAT54
6509	4822 130 11397	BAS316
6510	4822 130 61219	BZX79-B10
6511	4822 130 11397	BAS316
6512	4822 130 11397	BAS316
6514	5322 130 31932	BZT03-C200
6515	4822 130 33657	BZV85-C6V8
6516	4822 130 11397	BAS316
6517	4822 130 80622	BAT54
6525	3198 010 10640	Bridge cell GBU4K
6530	4822 130 41487	BYV95C
6534	9322 165 72687	DTV1500MFP
6535	4822 130 11572	STPS8H100F
6537	4822 130 11397	BAS316
6538	4822 130 11397	BAS316
6614	4822 130 80622	BAT54
6615	4822 130 11397	BAS316
6616	4822 130 11397	BAS316
6617	4822 130 11397	BAS316
6618	4822 130 11397	BAS316
6619	4822 130 31607	RGP10D
6620	5322 130 31938	BYV27-200
6621	4822 130 31607	RGP10D
6623	4822 130 11397	BAS316
6624	4822 130 11397	BAS316
6625	4822 130 11397	BAS316
6626	4822 130 11397	BAS316
6627	4822 130 11397	BAS316
6901	4822 130 11416	PDZ6.8B
6950	4822 130 11416	PDZ6.8B
6951	4822 130 11416	PDZ6.8B
6953	4822 130 11416	PDZ6.8B
6954	4822 130 11416	PDZ6.8B
6955	4822 130 11416	PDZ6.8B
6956	4822 130 11416	PDZ6.8B
6957	4822 130 11416	PDZ6.8B
6958	4822 130 11416	PDZ6.8B
6959	4822 130 11416	PDZ6.8B
6960	9340 548 61115	PDZ12B
6961	4822 130 11416	PDZ6.8B
6962	4822 130 11416	PDZ6.8B

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7100	4822 130 44568	BC557B
7101	4822 130 40981	BC337-25
7102	9322 160 34687	FQPF3N60
7103	9322 149 04682	TCET1102
7130	5322 130 60159	BC846B
7131	4822 130 11336	STP16NE06FP
7132	5322 130 60159	BC846B
7133	4822 130 60373	BC856B
7140	5322 130 60159	BC846B
7141	4822 130 11336	STP16NE06FP
7408	5322 130 44647	BC368
7409	5322 130 60159	BC846B
7421	9340 210 30127	BU2520DX
7440	4822 209 70672	LM358N SEL.
7441	4822 130 60373	BC856B
7442	4822 130 60373	BC856B
7443	5322 130 60159	BC846B
7445	5322 130 60159	BC846B
7450	5322 209 61472	LM393M
7455	4822 209 73852	PMBT2369
7480	4822 130 11417	STP3NB60FP
7482	4822 130 11418	TCDT1102G
7486	5322 130 60159	BC846B
7487	5322 130 60159	BC846B
7501	5322 130 60159	BC846B
7502	4822 130 40959	BC547B
7504	9322 194 20687	STP5NK50ZFP
7506	4822 209 14933	TL431IZ
7507	9322 149 04682	TCET1102
7528	4822 130 40981	BC337-25
7529	4822 130 44461	BC546B
7530	5322 130 60159	BC846B
7611	5322 130 60159	BC846B
7612	5322 130 60159	BC846B
7613	4822 209 81397	TL431CLPST
7614	5322 130 60159	BC846B
7620	4822 209 90009	TDA8177
7641	5322 130 60159	BC846B
7652	5322 130 60159	BC846B
7653	5322 130 60159	BC846B
7654	4822 130 60373	BC856B
7680	4822 209 60956	TDA7052/N2
7681	5322 130 60159	BC846B
7682	5322 130 44647	BC368
7701	9322 166 94682	TDA7495S
7710	5322 130 60159	BC846B
7711	5322 130 60159	BC846B
7901	5322 130 60159	BC846B
7902	5322 130 60159	BC846B
7910	9322 152 53687	LD1086V33
7912	5322 209 86445	LM7805CT

Small Signal Board [B]

Various

1112	2422 549 44369	SAW 38.9MHz K9656L
1113	2422 549 44372	SAW 38.9MHz K3953L
1581	2422 543 01359	Xtal 13.5MHz 12pF NX8045

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2002	2020 552 96507	10μF 10V
2003	2020 552 96507	10μF 10V
2005	2020 552 96618	1nF 10% 50V 0402
2006	2020 552 96618	1nF 10% 50V 0402
2008	2020 552 96618	1nF 10% 50V 0402
2012	3198 017 44740	470nF 10V 0603
2013	3198 035 04710	470pF 50V 0402
2014	3198 035 71040	100nF 10% 16V 0402
2015	3198 035 04710	470pF 50V 0402
2016	3198 017 44740	470nF 10V 0603
2018	3198 035 04710	470pF 50V 0402
2019	3198 017 44740	470nF 10V 0603
2021	3198 035 04710	470pF 50V 0402
2022	3198 017 44740	470nF 10V 0603
2024	3198 035 04710	470pF 50V 0402
2025	3198 017 44740	470nF 10V 0603
2027	3198 035 04710	470pF 50V 0402
2028	3198 017 44740	470nF 10V 0603
2030	2020 552 96618	1nF 10% 50V 0402
2031	2020 552 96618	1nF 10% 50V 0402
2032	2020 552 96618	1nF 10% 50V 0402
2033	2020 552 96618	1nF 10% 50V 0402
2037	2020 552 96507	10μF 10V
2038	2020 552 96507	10μF 10V
2039	2020 552 96507	10μF 10V
2040	2020 552 96507	10μF 10V
2045	3198 030 82280	2.2μF 20% 50V
2046	5322 124 41945	22μF 20% 35V
2047	4822 124 23002	10μF 20% 16V
2048	3198 035 71040	100nF 10% 16V 0402
2049	3198 035 71040	100nF 10% 16V 0402
2050	3198 035 71040	100nF 10% 16V 0402
2051	3198 035 71040	100nF 10% 16V 0402
2060	3198 035 71040	100nF 10% 16V 0402
2062	3198 035 71040	100nF 10% 16V 0402
2063	3198 035 71040	100nF 10% 16V 0402
2065	3198 035 71040	100nF 10% 16V 0402
2066	3198 035 71040	100nF 10% 16V 0402
2067	3198 035 71040	100nF 10% 16V 0402
2068	3198 035 71040	100nF 10% 16V 0402
2071	3198 035 71040	100nF 10% 16V 0402
2072	3198 035 71040	100nF 10% 16V 0402
2073	3198 035 71040	100nF 10% 16V 0402
2078	3198 035 71040	100nF 10% 16V 0402
2079	3198 035 71040	100nF 10% 16V 0402
2081	3198 035 71040	100nF 10% 16V 0402
2082	4822 126 14491	2.2μF -20+80% 10V 0805
2083	3198 035 71040	100nF 10% 16V 0402
2084	3198 035 71040	100nF 10% 16V 0402
2085	3198 035 71040	100nF 10% 16V 0402

2088	4822 126 14491	2.2μF -20+80% 10V 0805
2101	3198 035 71030	10nF 16V 0402
2102	3198 035 71030	10nF 16V 0402
2119	3198 035 71030	10nF 16V 0402
2126	2238 869 15101	100pF 5% 50V 0402
2127	3198 035 71040	100nF 10% 16V 0402
2128	3198 030 82280	2.2μF 20% 50V
2130	3198 035 71030	10nF 16V 0402
2134	3198 035 71040	100nF 10% 16V 0402
2135	4822 124 23002	10μF 20% 16V
2136	4822 124 23002	10μF 20% 16V
2137	4822 124 12095	100μF 20% 16V
2138	3198 035 71040	100nF 10% 16V 0402
2150	3198 035 71040	100nF 10% 16V 0402
2151	3198 030 82280	2.2μF 20% 50V
2152	3198 035 71040	100nF 10% 16V 0402
2154	4822 124 23002	10μF 20% 16V
2155	3198 035 71040	100nF 10% 16V 0402
2156	3198 035 71040	100nF 10% 16V 0402
2157	3198 035 71040	100nF 10% 16V 0402
2281	3198 035 71040	100nF 10% 16V 0402
2282	3198 035 71040	100nF 10% 16V 0402
2284	3198 035 71040	100nF 10% 16V 0402
2285	3198 035 71040	100nF 10% 16V 0402
2300	3198 035 71040	100nF 10% 16V 0402
2305	3198 017 41050	1μF 10V 0603
2307	2238 869 15101	100pF 5% 50V 0402
2308	2238 869 15101	100pF 5% 50V 0402
2310	4822 124 23002	10μF 20% 16V
2311	3198 035 71030	10nF 16V 0402
2317	2238 869 15101	100pF 5% 50V 0402
2318	2238 869 15101	100pF 5% 50V 0402
2321	3198 035 71030	10nF 16V 0402
2324	2238 869 15101	100pF 5% 50V 0402
2325	2238 869 75829	82pF 5% 50V 0402
2327	2238 869 15101	100pF 5% 50V 0402
2328	2238 869 15101	100pF 5% 50V 0402
2331	3198 035 71030	10nF 16V 0402
2341	3198 035 71040	100nF 10% 16V 0402
2342	3198 035 71040	100nF 10% 16V 0402
2343	3198 035 71040	100nF 10% 16V 0402
2344	3198 035 71040	100nF 10% 16V 0402
2345	3198 035 71040	100nF 10% 16V 0402
2346	3198 035 71040	100nF 10% 16V 0402
2350	4822 124 12095	100μF 20% 16V
2351	2238 869 15109	10pF 5% 50V 0402
2352	2238 869 15109	10pF 5% 50V 0402
2358	2238 869 15101	100pF 5% 50V 0402
2359	3198 035 71040	100nF 10% 16V 0402
2360	2238 869 15101	100pF 5% 50V 0402
2361	4822 126 14491	2.2μF -20+80% 10V 0805
2363	2238 869 15101	100pF 5% 50V 0402
2364	4822 126 14491	2.2μF -20+80% 10V 0805
2365	2238 869 15101	100pF 5% 50V 0402
2366	4822 126 14491	2.2μF -20+80% 10V 0805
2371	2020 552 96618	1nF 10% 50V 0402
2372	2020 552 96618	1nF 10% 50V 0402
2377	2020 552 96623	2.2nF 10% 50V 0402
2379	2020 552 96623	2.2nF 10% 50V 0402
2380	3198 035 04710	470pF 50V 0402
2384	2020 552 96618	1nF 10% 50V 0402
2386	2238 869 15109	10pF 5% 50V 0402
2395	3198 035 71030	10nF 16V 0402
2397	3198 035 71040	100nF 10% 16V 0402
2432	2020 552 96618	1nF 10% 50V 0402
2433	2020 552 96618	1nF 10% 50V 0402
2434	3198 017 44740	470nF 10V 0603
2435	3198 017 44740	470nF 10V 0603
2438	3198 017 44740	470nF 10V 0603
2439	3198 017 44740	470nF 10V 0603
2440	2020 552 96618	1nF 10% 50V 0402
2441	2020 552 96618	1nF 10% 50V 0402
2442	2020 552 96618	1nF 10% 50V 0402
2443	2020 552 96618	1nF 10% 50V 0402
2444	2020 552 96618	1nF 10% 50V 0402
2445	2020 552 96618	1nF 10% 50V 0402
2447	4822 124 12095	100μF 20% 16V
2450	3198 035 71030	10nF 16V 0402
2452	3198 035 71030	10nF 16V 0402
2454	4822 126 14491	2.2μF -20+80% 10V 0805
2457	4822 126 14491	2.2μF -20+80% 10V 0805
2461	3198 017 44740	470nF 10V 0603
2462	3198 017 44740	470nF 10V 0603
2480	3198 017 44740	470nF 10V 0603
2481	3198 017 44740	470nF 10V 0603
2483	2020 552 96618	1nF 10% 50V 0402
2484	4822 124 23002	10μF 20% 16V
2485	2020 552 96618	1nF 10% 50V 0402
2486	3198 035 71040	100nF 10% 16V 0402
2487	4822 124 23002	10μF 20% 16V
2488	4822 124 12095	100μF 20% 16V
2489	4822 124 12095	100μF 20% 16V
2514	2238 869 15189	18pF 5% 50V 0402
2516	2238 869 15189	18pF 5% 50V 0402
2525	3198 035 71040	100nF 10% 16V 0402
2546	3198 035 71040	100nF 10% 16V 0402
2557	2238 869 15101	100pF 5% 50V 0402
2571	3198 035 71040	100nF 10% 16V 0402
2581	4822 126 14519	22pF 5% 50V 0402
2582	4822 126 14519	22pF 5% 50V 0402
2583	3198 035 71040	100nF 10% 16V 0402
2584	3198 035 71040	100nF 10% 16V 0402
2600	3198 035 71040	100nF 10% 16V 0402
2601	3198 035 71040	100nF 10% 16V 0402
2604	3198 035 71040	100nF 10% 16V 0402
2607	3198 035 71040	100nF 10% 16V 0402
2609	3198 035 71040	100nF 10% 16V 0402
2611	3198 035 71040	100nF 10% 16V 0402
2612	3198 035 71040	100nF 10% 16V 0402
2615	3198 035 71040	100nF 10% 16V 0402
2618	3198 035 71040	100nF 10% 16V 0402
2620	3198 035 71040	100nF 10% 16V 0402
2622	3198 035 71040	100nF 10% 16V 0402
2623	3198 035 71040	100nF 10% 16V 0402
2628	3198 035 71040	100nF 10% 16V 0402
2629	3198 035 71040	100nF 10% 16V 0402
2630	3198 035 71040	100nF 10% 16V 0402
2633	3198 035 71040	100nF 10% 16V 0402
2634	3198 035 71040	100nF 10% 16V 0402
2638	3198 035 71040	100nF 10% 16V 0402
2644	5322 124 41945	22μF 20% 35V
2645	4822 124 23002	10μF 20% 16V
2651	2020 021 91679	100μF 20% 6.3V
2652	2020 552 96507	10μF 10V
2654	2020 552 96507	10μF 10V
2655	2020 552 96507	10μF 10V
2656	3198 035 71040	100nF 10% 16V 0402
2657	2238 869 15101	100pF 5% 50V 0402
2659	4822 126 13879	220nF 20% 16V
2730	3198 035 71040	100nF 10% 16V 0402
2731	3198 035 71040	100nF 10% 16V 0402
2732	3198 035 71040	100nF 10% 16V 0402
2733	3198 035 71040	100nF 10% 16V 0402
2734	3198 035 71040	100nF 10% 16V 0402
2792	3198 035 71040	100nF 10% 16V 0402
2793	3198 035 71040	100nF 10% 16V 0402
2918	2238 869 15101	100pF 5% 50V 0402
2919	2238 869 15101	100pF 5% 50V 0402
2920	2238 869 75829	82pF 5% 50V 0402
2932	2238 869 15101	100pF 5% 50V 0402
2933	2238 869 15101	100pF 5% 50V 0402
2935	2238 869 15101	100pF 5% 50V 0402
2936	2238 869 15101	100pF 5% 50V 0402
2938	2238 869 15101	100pF 5% 50V 0402
2948	2238 869 15189	18pF 5% 50V 0402
2949	2238 869 15189	18pF 5% 50V 0402
2950	2238 869 15101	100pF 5% 50V 0402
2951	2238 869 15101	100pF 5% 50V 0402
2962	2238 869 15101	100pF 5% 50V 0402
2967	2020 552 96618	1nF 10% 50V 0402
2968	2020 552 96618	1nF 10% 50V 0402
2975	2020 552 96793	4.7nF 10% 50V 0402
2976	2020 552 96793	4.7nF 10% 50V 0402
2977	2238 869 15101	100pF 5% 50V 0402
2978	2238 869 15101	100pF 5% 50V 0402
2979	2238 869 15101	100pF 5% 50V 0402

-WW-

3002	3198 031 04730	47Ω 5% 0402
3003	3198 031 04730	47Ω 5% 0402
3004	3198 031 04730	47Ω 5% 0402
3005	3198 031 04730	47Ω 5% 0402
3006	3198 031 04730	47Ω 5% 0402
3007	3198 031 04730	47Ω 5% 0402
3010	4822 117 13605	Jumper 0402
3011	4822 117 13605	Jumper 0402
3018	4822 117 11152	4.7Ω 5% 0.062W
3019	5322 117 11726	10Ω 5%
3022	3198 031 04730	47Ω 5% 0402
3024	3198 031 04730	47Ω 5% 0402
3026	3198 031 04730	47Ω 5% 0402
3027	3198 031 04730	47Ω 5% 0402
3060	4822 117 13602	2.2kΩ 5% 0.01W 0402
3061	4822 117 13602	2.2kΩ 5% 0.01W 0402
3062	3198 031 01810	180Ω 5% 0402
3063	3198 031 01810	180Ω 5% 0402
3066	4822 117 13602	2.2kΩ 5% 0.01W 0402
3067	4822 117 13548	1kΩ 5% 0402
3068	4822 117 13548	1kΩ 5% 0402
3101	4822 117 13602	2.2kΩ 5% 0.01W 0402
3103	3198 031 06820	6.8kΩ 5% 0.01W 0402
3104	4822 117 13602	2.2kΩ 5% 0.01W 0402
3106	3198 031 02730	27kΩ 5% 0402
3131	3198 031 04720	4.7kΩ 5% 0402
3132	4822 117 13545	100Ω 1% 0402
3138	3198 031 03910	390Ω 1% 0402
3150	3198 031 01820	1K8 5% 0402
3151	3198 031 01220	1K2 5% 0402
3152	3198 031 01820	1K8 5% 0402
3153	3198 031 01220	1K2 5% 0402
3154	3198 031 04730	47Ω 5% 0402
3155	3198 031 08210	820Ω 5% 0,5W
3281	4822 117 13548	1kΩ 5% 0402
3282	4822 117 13548	1kΩ 5% 0402
3283	4822 117 13548	1kΩ 5% 0402
3284	4822 117 13548	1kΩ 5% 0402
3302	3198 031 01220	1K2 5% 0402
3303	3198 031 06820	6.8kΩ 5% 0.01W 0402
3304	4822 117 13597	330Ω 5% 0402 0.01W
3305	4822 117 13548	1kΩ 5% 0402
3306	3198 031 03390	33Ω 1% 0402
3307	2322 705 87189	18Ω 5% 0402
3309	4822 051 30331	330Ω 5% 0.062W
3310	3198 031 01220	1K2 5% 0402
3311	3198 031 03390	33Ω 1% 0402
3312	3198 031 01220	1K2 5% 0402
3313	4822 117 13597	330Ω 5% 0402 0.01W
3316	2322 705 87189	18Ω 5% 0402
3318	3198 031 01220	1K2 5% 0402
3319	4822 051 30331	330Ω 5% 0.062W
3320	3198 031 01220	1K2 5% 0402
3321	3198 031 03390	33Ω 1% 0402
3322	3198 031 01220	1K2 5% 0402
3323	4822 117 13597	330Ω 5% 0402 0.01W
3325	3198 031 04720	4.7kΩ 5% 0402
3326	4822 117 13543	470Ω 5% 0402
3329	4822 051 30331	330Ω 5% 0.062W
3330	3198 031 01220	1K2 5% 0402
3331	3198 031 03390	33Ω 1% 0402
3332	3198 031 01220	1K2 5% 0402
3333	4822 117 13597	330Ω 5% 0402 0.01W
3334	3198 031 03390	33Ω 1% 0402
3335	3198 031 03390	33Ω 1% 0402
3336	3198 031 03390	33Ω 1% 0402
3337	3198 031 03390	33Ω 1% 0402
3338	2322 705 87189	18Ω 5% 0402
3340	4822 117 13548	1kΩ 5% 0402
3343	4822 117 13606	10kΩ 5% 0.01W 0402
3345	3198 031 06820	6.8kΩ 5% 0.01W 0402
3346	4822 117 13548	1kΩ 5% 0402
3347	4822 117 13601	22kΩ 5% 0402
3348	4822 117 13601	22kΩ 5% 0402
3349	3198 031 04730	47Ω 5% 0402
3350	4822 117 13596	220Ω 5% 0.01W 0402
3351	4822 117 13548	1kΩ 5% 0402
3352	3198 031 04730	47Ω 5% 0402
3353	4822 117 13606	10kΩ 5% 0.01W 0402
3354	4822 117 13606	10kΩ 5% 0.01W 0402
3355	4822 117 13601	22kΩ 5% 0402
3356	3198 031 08210	820Ω 5% 0,5W
3357	4822 117 13601	22kΩ 5% 0402
3358	5322 117 11726	10Ω 5%
3361	4822 117 13605	Jumper 0402
3364	2322 705 70124	120kΩ 5% 0402
3365	4822 117 13605	Jumper 0402
3366	4822 117 13602	2.2kΩ 5% 0.01W 0402
3367	4822 117 13548	1kΩ 5% 0402
3368	3198 031 06830	68kΩ 5% 0.01W 0402
3371	4822 117 13548	1kΩ 5% 0402
3372	2322 705 70155	1.5MΩ 5% 0402
3373	4822 117 13606	10kΩ 5% 0.01W 0402
3374	3198 031 02720	2.7kΩ 5% 0.01W 0402
3375	3198 031 02720	2.7kΩ 5% 0.01W 0402
3376	4822 117 13606	10kΩ 5% 0.01W 0402
3377	3198 031 02250	2.2MΩ 5% 0402
3378	3198 031 03340	330kΩ 5% 0402
3380	4822 117 13606	10kΩ 5% 0.01W 0402
3382	4822 117 13548	1kΩ 5% 0402
3384	4822 117 13606	10kΩ 5% 0.01W 0402
3385	3198 031 04730	47Ω 5% 0402
3386	3198 031 02730	27kΩ 5% 0402
3390	4822 117 13548	1kΩ 5% 0402
3391	3198 031 03930	39kΩ 5% 0402
3392	3198 031 04730	47Ω 5% 0402
3393	3198 031 03320	3.3kΩ 5% 0402
3395	4822 117 13606	10kΩ 5% 0.01W 0402
3396	4822 117 13543	470Ω 5% 0402
3397	4822 117 13543	470Ω 5% 0402
3398	4822 117 13545	100Ω 1% 0402
3445	3198 031 04730	47Ω 5% 0402
3446	3198 031 05630	56kΩ 5% 0402
3447	3198 031 05630	56kΩ 5% 0402
3448	3198 031 01220	1K2 5% 0402
3449	3198 031 01520	1.2kΩ 5% 0.01W 0402
3450	3198 031 01220	1K2 5% 0402
3452	3198 031 01220	1K2 5% 0402
3453	3198 031 04730	47Ω 5% 0402
3454	3198 031 05630	56kΩ 5% 0402
3455	3198 031 05630	56kΩ 5% 0402
3456	3198 031 01220	1K2 5% 0402

MUTE	MUTE Line
NAFTA	North Američan Free Trade Association: Trade agreement between Canada, USA and Mexico
NC	Not Connected
NDF	No vertical Deflection; Vertical fly back protection
NHF	No Horizontal deflection; Horizontal fly back protection
NICAM	Near Instantaneously Companded Audio Multiplexing; This is a digital sound system, mainly used in Europe
NTC	Negative Temperature Coefficient, non-linear resistor (resistance decreases if temperature increases)
NTSC	National Television Standard Committee. Colour system used mainly in North America and Japan. Colour carrier NTSC M/N = 3.579545 MHz, NTSC 4.43 = 4.433619 MHz (this is a VCR norm, it is not transmitted off-air)
NVM	Non Volatile Memory; IC containing data such as alignment values, preset stations
O/C	Open Circuit
OB	Option Byte
OC	Open Circuit
ON/OFF LED	On/Off control signal for the LED
ON/STBY	On/Standby
ON-OFF-LED	Active-LOW control line. Logic LOW = red LED "on", HIGH = red LED "off"
OP	Option Byte
OSD	On Screen Display
P50	Project 50; Communication protocol between TV and peripherals
PAL	Phase Alternating Line; Colour system mainly used in West Europe (colour carrier= 4.433619 MHz) and South America (colour carrier PAL M= 3.575612 MHz and PAL N= 3.582056 MHz)
PC	Personal Computer
PCB	Printed Circuit Board (or PWB)
PCM	Pulse Code Modulation
PILOT	Pilot Signal
PIG	Picture In Graphic
PIP	Picture In Picture
PLL	Phase Locked Loop; Used for e.g. FST tuning systems. The customer can directly provide the desired frequency
POR	Power On Reset; Signal to reset the µP
POR-FLASH	Signal that informs the micro controller (painter) that set will switch "off"
Progressive Scan	Scan mode where all scan lines are displayed in one frame at the same time, creating a double vertical resolution.
PTC	Positive Temperature Coefficient, non linear resistor (resistance increases if temperature increases)
PTP	Picture Tube Panel
PWB	Printed Wiring Board (also called PCB or CBA).
PWM	Pulse Width Modulation
QSS	Quasi Split Sound
R	Right audio channel / Red
RAM	Random Access Memory
RC	Remote Control transmitter
RC5 (6)	Remote Control system 5 (6), the signal from the remote control receiver
RDS	Radio Data System (European); This is an MPX signal carried in FM radio channels (87.5 ... 108 MHz)
RESET	RESET signal
RF	Real Flat (picture tube) or Radio Frequency
RGB	Red, Green, and Blue colour space; The primary colour signals for TV. By mixing levels of R, G, and B, all colours (Y/C) are reproduced
RGBHV	Red, Green, Blue, Horizontal sync, and Vertical sync
RISC	Reduced Instruction Set Computer; A processor architecture based on ultra-high speed processing technology that uses a far simpler set of operating commands than a normal microprocessor does
RMS	Root Mean Square value
ROM	Read Only Memory
S	Surround channel or mono surround channel (audio)
SALSA	System Application for Low Segment of Analogue TV
SAM	Service Alignment Mode
SAP	Secondary Audio Program; Generally used to transmit audio in a second language
SAW	Surface Acoustic Wave
SC	SandCastle: two-level pulse derived from sync signals
SCART	Syndicat des Constructeurs d'Appareils Radiorécepteurs et Téléviseurs; This is a 21-pin connector used in EU, that carries various audio, video, and control signals (it is also called Péritel connector)
SCAVEM	Scan Velocity Modulation; Advanced beam control technology, which results in sharper edges on all images for outstanding clarity
SC1-OUT	SCART output of the MSP audio IC
SC2-B-IN	SCART2 Blue in
SC2-C-IN	SCART2 chrominance in
SC2-OUT	SCART output of the MSP audio IC
S/C	Short Circuit
SCL	Serial Clock signal on I^2C bus
SCL-F	Serial CLock signal on Fast I^2C bus
SD	Standard Definition
SDA	Serial Data line of I^2C bus
SDA-F	Data Signal on Fast I^2C bus
SDM	Service Default Mode
SDAM	Service Default / Alignment Mode
SDRAM	Synchronous DRAM
SECAM	SÉquence Couleur Avec Mémoire; Colour system mainly used in France and East Europe. The chroma is FM modulated and the R-Y and B-Y signals are transmitted line sequentially. Colour carriers= 4.406250 MHz and 4.250000 MHz
SEL-SVHS-RR-STATUS2	SVHS Selection Signal
SIF	Sound Intermediate Frequency
SIMM	Single In-line Memory Module; 80-fold connector between LSP and SSB
SL	Single In-line Memory Module; 80-fold connector between LSP and SSB
SLDP	Smart Local Dooming Prevention (HW and SW)
SMC	Surface Mounted Component
SMPS	Switched Mode Power Supply
SND	SouND
SNDL-SC1-IN	Sound left SCART1 in
SNDL-SC1-OUT	Sound left SCART1 out

SNDL-SC2-IN	Sound left SCART2 in
SNDL-SC2-OUT	Sound left SCART2 out
SNDR-SC1-IN	Sound right SCART1 in
SNDR-SC1-OUT	Sound right SCART1 out
SNDR-SC2-IN	Sound right SCART2 out
SNDR-SC2-OUT	Sound right SCART2 out
SNDS-VL-OUT	Surround sound left variable level out
SNDS-VR-OUT	Surround sound right variable level out
SNERT	Synchronous No parity Eight bit Reception and Transmission
SOG	Sync On Green
SOPS	Self Oscillating Power Supply
SOUND-ENABLE	Control line to do hardware mute or un-mute of loudspeakers.
SRAM	Static RAM
SRAM	Static RAM
SS	Small Screen
ST-BY	STandBY
STANDBY (POR)	Signal coming from Main Supply informing the supply is switching "off"
STATUS	Status signal from pin 8 of SCART connector
STBY	STandBY
SVHS	Super Video Home System
SW	Software or Subwoofer or Switch
TBD	To Be Defined
THD	Total Harmonic Distortion
TILT	PWM Output signal (variable DC level) to control the picture tilt from the DOP block of the ADOC.
TXT	Teletext; TXT is a digital addition to analogue TV signals that contain textual and graphical information (25 rows x 40 columns). The information is transmitted within the first 25 lines during the Vertical Blank Interval (VBI)
TXT-SW	Teletext switch
U-100	U signal 1fH (after Feature Box)
UART	Universal Asynchronous Receiver Transmitter
UBE	Ultra Bass Enhancement
µC	Microcontroller
UI	User Interface
UOC	Ultimate One Chip
µP	Microprocessor
UV	Colour difference signals
V	V_sync
V-100	V_sync from Feature Box (2fH)
V-2FH	Vertical sync input for the 2fH source.
VA50	Vertical Acquisition 1fH
V-AMP	Vertical Amplitude DAC output
V-BAT	Main supply for deflection (usually 141 V)
VD-100	Vertical Drive 2fH; vertical sync pulse from deflection
VD-NEG	One of the symmetrical drive signals for the DC frame output stage.
VD-POS	One of the symmetrical drive signals for the DC frame output stage
V-OSD	Vertical sync OSD
VA	Vertical Acquisition
VBI	Vertical Blanking Interval; Time during which the video signal is blanked when going from bottom to top of the display
V-chip	Violence chip. Adds content filtering capabilities to NTSC video
VCR	Video Cassette Recorder
VD	Vertical Drive; Vertical sync pulse coming from the Feature Box
VDS	Virtual Dolby Surround
VERT	Vertical Output pulse
VESA	Video Electronics Standards Association
VGA	Video Graphics Array
VGND	Video ground
VGUARD	Vertical guard voltage
VIF	Video Intermediate Frequency
VL	Variable Level out; Processed audio output towards external amplifier
VOL (+/-)	Volume (+/-)
V-SYNC-VGA	V_sync on VGA connector
WD	Watch Dog
WE	Write Enable control line
WS	Wide Screen; Screens with an aspect ratio of 16:9
WSS	Wide Screen Signalling; Used by broadcasters to transmit e.g. PALPLUS and 16:9 Aspect Ratio
WST	World System Teletext
WXGA	1280x768 (15:9) or 1366x768 (16:9)
WYSIWYR	What You See Is What You Record: record selection that follows main picture and sound
XGA	Extended Graphics Array; 1024x768 (4:3)
XTAL	Quartz crystal
Y	Luminance signal
YPbPr	Component video (Y= Luminance, Pb/Pr= Colour difference signals B-Y and R-Y, other amplitudes w.r.t. to YUV)
Y/C	Y consists of luminance signal, blanking level and sync; C consists of chroma (colour) signal
Y-OUT	Luminance-signal
YUV	Colour space used by the NTSC and PAL video systems. Y is the luminance and U/V are the colour difference signals

9.5 IC Data Sheets

This section shows the internal block diagrams and pin layouts of ICs that are drawn as "black boxes" in the electrical diagrams (with the exception of "memory" and "logic" ICs). This is not applicable to this manual.

10. Spare Parts List

Large Signal Panel [A]

Various

0080	4822 492 70789	Transistor clamp
0136	3104 301 24181	Spring for Bracket
0137	3104 301 24181	Spring for Bracket
0138	4822 255 41371	Transistor clamp
0139	4822 492 62076	Transistor clamp
0261	3104 304 10661	Cable clamp
0262	3104 304 10722	Cable clamp
0320	4822 255 41371	Transistor clamp
0341	4822 492 70788	IC clamp
0389	4822 492 70789	Transistor clamp
0395	4822 492 70789	Transistor clamp
0396	4822 492 70789	Transistor clamp
1205	2422 025 17242	Connector 80p f
1417	4822 265 20723	Connector 2p m
1424	2422 025 11244	Connector 7p m
1491	4822 267 10973	Connector 1p m
1498	2422 025 04849	Connector 2p m
1499	2422 025 04849	Connector 2p m
1501	4822 070 35002	Fuse 5A
1502	4822 267 10774	Connector 2p m Rd
1503	4822 070 12502	Fuse 2.5A
1505	2422 025 16374	Connector 2p m
1511	4822 265 11253	Fuse holder 2p
1512	4822 265 11253	Fuse holder 2p
1550	2422 132 07411	Relay 1p 5V 5A
1590	4822 252 60151	Sparkgap dsp501
1591	4822 252 60151	Sparkgap dsp501
1601	2422 086 10919	Fuse 65V 125mA
1620	4822 267 10735	Connector 3p m
1625	2422 025 16382	Connector 3p m
1735	4822 267 10565	Connector 4p
1901	4822 267 10771	Socket 2 x SCART
1902	4822 267 10982	Connector 2p
1936	2422 025 12485	Connector 11p m
1940	2422 025 12485	Connector 11p m
1943	4822 267 10748	Connector 3p m
1945	4822 267 10735	Connector 3p m
1947	4822 267 10734	Connector 5p m
8000	3104 311 03272	Cable 640mm EHT
8193	4822 320 20216	Focus cable 364 mm
8194	4822 320 20189	Cable HT-focus 44cm Rd
8417	3104 311 04561	Cable 2p3/400/2p3
8424	3104 311 02991	Cable 7p/560/7p Wh
8625	3104 311 03101	Cable 3p/560/3p Bk
8625	3104 311 06261	Cable 2p/560/2p3 HR BK INS
8936	3104 311 04121	Cable 11p/680/11p INS
8936	4822 320 12514	Cable 11p 680mm
8940	3104 311 01161	Cable 11p/340/11p Bk
8940	4822 323 10458	Cable 11p 480mm HR WH

⊣⊢

2100	4822 126 13841	1nF 20% 250V
2101	4822 121 51598	2.2nF 5% 400V
2102	4822 124 40248	10µF 20% 63V
2103	2020 552 94427	100pF 5% 50v 0603
2104	4822 123 14025	2200µF 20% 16V
2105	2020 552 94427	100pF 5% 50v 0603
2107	4822 121 43855	3.3nF 5% 400V
2108	4822 121 70162	10nF 5% 400V
2109	4822 126 14472	1µF 10% 10V 0805
2110	4822 126 14472	1µF 10% 10V 0805
2111	4822 121 43526	47nF 5% 250V
2112	5322 126 11583	10nF 10% 50V 0603
2115	4822 124 40764	22µF 100 V
2116	4822 126 13682	100pF 5% 1kV
2118	4822 124 80061	1000µF 20% 25V
2119	4822 123 14025	2200µF 20% 16V
2120	4822 126 13862	1.5nF 10% 2kV
2126	4822 123 14025	2200µF 20% 16V
2130	5322 126 11583	10nF 10% 50V 0603
2131	4822 126 13881	470pF 5% 50V
2132	4822 126 10206	2.2nF 10% 500V
2140	4822 124 40248	10µF 20% 63V
2141	4822 124 40248	10µF 20% 63V
2143	4822 126 10206	2.2nF 10% 500V
2144	4822 126 14472	1µF 10% 10V 0805
2145	4822 126 13881	470pF 5% 50V
2147	3198 017 31530	15nF 20% 50V 0603
2148	4822 126 13599	3.3nF 10% 500V
2149	4822 126 14472	1µF 10% 10V 0805
2150	5322 126 11583	10nF 10% 50V 0603
2153	5322 126 11582	6.8nF 10% 63V
2154	4822 126 14549	33nF 16V 0603
2161	2020 558 90556	680pF 10%b 1kV
2161	4822 126 14152	680pF 10% 1kV
2163	2222 338 22104	100nF 20% 275V
2200	4822 124 40248	10µF 20% 63V
2201	4822 126 13879	220nF 20% 16V
2202	4822 126 13473	220nF 80-20% 50V
2203	4822 124 41584	100µF 20% 10V
2400	4822 124 11936	47µF 20% 160V
2401	4822 121 42077	6.8nF 10% 400V
2402	4822 124 12373	47µF 20% 250V
2403	2238 916 15641	22nF 10% 25V 0603
2404	2238 916 15641	22nF 10% 25V 0603
2405	4822 126 13841	1nF 20% 250V
2412	3198 024 44730	47nF 50V 0603
2413	4822 124 12255	10µF 20% 50V
2414	3198 024 44730	47nF 50V 0603
2415	4822 126 13883	220pF 5% 50V
2417	4822 126 14076	220nF 25V. 20%
2419	4822 126 14237	470pF 10% 2kV
2420	4822 121 70581	1.5nF 5% 2kV
2420	4822 121 70594	1nF 5% 2kV
2421	2038 301 00312	1.2µF 5% 250V
2421	4822 121 42634	560nF 5% 250V
2425	4822 121 10526	9.1nF 5% 2kV
2425	4822 121 70435	10nF 5% 2kV
2426	4822 121 10653	22nF 5% 630V
2430	4822 126 10206	2.2nF 10% 500V
2431	4822 126 10206	2.2nF 10% 500V
2433	2022 333 00087	510nF 5% 250V
2433	2022 333 00163	360nF 5% 250V
2440	2020 552 96448	1µF 10% 16V
2443	9965 000 09661	470pF 50V 10%
2448	5322 122 32268	470pF 5% 63V
2450	4822 121 42408	220nF 10% 50V
2450	5322 121 42578	100nF 5% 250V
2451	2020 012 93757	1000µF 20% 10V
2454	3198 017 31530	15nF 20% 50V 0603
2455	5322 126 11578	1nF 10% 50V 0603
2457	4822 126 13188	15nF 5% 63V
2458	4822 126 14241	330pF 50V 0603
2460	4822 124 81144	1000µF 16V
2461	4822 122 31169	1.5nF 10% 500V
2461	4822 126 11524	1.5nF 10% 1kV
2462	4822 124 11767	470µF 20% 25V
2463	4822 122 31177	470pF 10% 500V
2464	4822 124 11767	470µF 20% 25V
2465	4822 122 31177	470pF 10% 500V
2466	2238 586 59812	100nF 20-80% 50V 0603
2468	4822 122 31177	470pF 10% 500V
2480	5322 126 11582	6.8nF 10% 63V
2482	3198 017 34730	47nF 16V 0603
2483	3198 017 31530	15nF 20% 50V 0603
2490	4822 124 41584	100µF 20% 10V
2491	4822 124 81151	22µF 50V
2492	4822 124 41584	100µF 20% 10V
2494	2238 780 15654	220nF 10% 16V
2495	2238 780 15654	220nF 10% 16V
2496	2238 586 59812	100nF 20-80% 50V 0603
2497	4822 126 12105	33nF 5% 50V
2498	2020 552 96448	1µF 10% 16V
2499	5322 126 11579	3.3nF 10% 63V
2501	4822 126 13449	1nF 10% 2KV
2501	4822 126 14053	1nF 10% 2kV
2503	5322 121 42489	33nF 5% 250V
2504	2238 916 15641	22nF 10% 25V 0603
2505	2020 554 90169	470pF 20% 250V
2507	2222 338 22474	470nF 20% 275V
2508	4822 124 11913	22nF 20% 275V
2509	4822 124 11913	22nF 20% 275V
2510	4822 126 12263	220pF 10% 2kV
2512	4822 124 12056	1000µF 20% 35V
2513	4822 126 13881	470pF 5% 50V
2514	4822 126 14238	2.2nF 50V 0603
2515	4822 124 80096	47µF 200V
2516	2222 057 36221	220µF 20% 400V 057
2518	4822 122 31211	100pF 10% 500V
2519	4822 126 10206	2.2nF 10% 500V
2524	5322 126 11583	10nF 10% 50V 0603
2525	4822 126 14247	1.5nF 50V 0603
2526	2020 558 90571	2.2nF 10% 1kV
2527	4822 126 14237	470pF 10% 2kV
2528	4822 126 14472	1µF 10% 10V 0805
2530	4822 126 14472	1µF 10% 10V 0805
2531	4822 122 31175	1nF 10% 500V
2532	4822 126 14472	1µF 10% 10V 0805
2533	2020 557 90732	4.7nF 10% 250V
2535	4822 126 13193	4.7nF 10% 63V
2537	4822 124 11913	22nF 20% 275V
2538	4822 122 33177	10nF 20% 50V
2540	4822 124 21913	1µF 20% 63V
2541	4822 122 31211	100pF 10% 500V
2544	4822 126 14238	2.2nF 50V 0603
2547	2222 338 22104	100nF 20% 275V
2601	2238 586 59812	100nF 20-80% 50V 0603
2603	4822 126 13883	220pF 5% 50V
2604	4822 126 13473	220nF 80-20% 50V
2605	4822 126 13883	220pF 5% 50V
2620	4822 126 13473	220nF 80-20% 50V
2621	2238 586 59812	100nF 20-80% 50V 0603
2622	4822 124 40255	100µF 20% 63V
2623	4822 126 14238	2.2nF 50V 0603
2624	4822 121 51252	470nF 5% 63V
2625	4822 121 51252	470nF 5% 63V
2627	5322 124 40641	10µF 20% 100V
2628	4822 124 40255	100µF 20% 63V
2630	4822 126 14491	2.2µF -20+80% 10V 0805
2631	4822 126 14491	2.2µF -20+80% 10V 0805
2633	5322 126 11579	3.3nF 10% 63V
2635	2238 586 59812	100nF 20-80% 50V 0603
2642	4822 124 40255	100µF 20% 63V
2653	2238 586 15628	2.7nF 10% 50V 0603
2653	5322 126 11579	3.3nF 10% 63V
2656	2238 916 15641	22nF 10% 25V 0603
2657	2238 916 15641	22nF 10% 25V 0603
2659	2238 916 15641	22nF 10% 25V 0603
2660	5322 126 11578	1nF 10% 50V 0603
2701	4822 126 14043	1µF 20% 16V
2702	3198 016 31020	1nF 10% 25V 0603
2703	4822 126 14043	1µF 20% 16V
2704	3198 016 31020	1nF 10% 25V 0603
2707	4822 126 14043	1µF 20% 16V
2708	4822 124 11767	470µF 20% 25V
2709	3198 026 51020	1000µF 50V 20%
2710	4822 126 14585	100nF 10% 50V
2711	4822 124 80061	1000µF 20% 25V
2712	3198 017 34730	47nF 16V 0603
2713	3198 017 34730	47nF 16V 0603
2714	4822 124 80061	1000µF 20% 25V
2715	3198 017 34730	47nF 16V 0603
2716	3198 017 34730	47nF 16V 0603
2722	4822 124 40255	100µF 20% 63V
2914	4822 124 40248	10µF 20% 63V
2915	4822 124 40248	10µF 20% 63V
2918	4822 126 14585	100nF 10% 50V
2940	4822 124 41584	100µF 20% 10V
2941	4822 126 14585	100nF 10% 50V
2942	4822 126 14585	100nF 10% 50V
2943	4822 126 14585	100nF 10% 50V
2945	4822 126 14491	2.2µF -20+80% 10V 0805
2946	4822 126 14491	2.2µF -20+80% 10V 0805
2947	4822 124 40769	4.7µF 20% 100V
2950	5322 126 11583	10nF 10% 50V 0603
2951	5322 126 11583	10nF 10% 50V 0603
2987	5322 122 31863	330pF 5% 63V
2989	5322 122 31863	330pF 5% 63V
2990	5322 122 31863	330pF 5% 63V
2991	4822 051 20333	33kΩ 5% 0.1W
2991	5322 122 32531	100pF 5% 50V
2992	5322 122 31863	330pF 5% 63V
2993	4822 051 20333	33kΩ 5% 0.1W
2993	5322 122 32531	100pF 5% 50V
2994	5322 122 31863	330pF 5% 63V
2995	5322 122 31863	330pF 5% 63V
2996	5322 122 31863	330pF 5% 63V
2997	5322 122 31863	330pF 5% 63V
2998	4822 051 20333	33kΩ 5% 0.1W
2998	5322 122 32531	100pF 5% 50V
2999	4822 051 20333	33kΩ 5% 0.1W
2999	5322 122 32531	100pF 5% 50V

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3101	4822 053 20475	4.7MΩ 5% 0.25W
3102	4822 050 21002	1kΩ 1% 0.6W
3103	4822 050 21002	1kΩ 1% 0.6W
3104	4822 116 52195	47Ω 5% 0.5W
3105	4822 050 11002	1kΩ 1% 0.4W
3106	4822 116 52256	2.2kΩ 5% 0.5W
3107	4822 116 52256	2.2kΩ 5% 0.5W
3108	2122 101 01363	2.2Ω 5%
3111	4822 053 10152	1.5kΩ 5% 1W
3113	4822 116 52186	22Ω 5% 0.5W
3114	4822 116 52219	330Ω 5% 0.5W
3115	4822 116 52257	22kΩ 5% 0.5W
3116	4822 116 52257	22kΩ 5% 0.5W
3117	4822 116 52195	47Ω 5% 0.5W
3118	2122 101 01363	2.2Ω 5%
3120	4822 051 20109	10Ω 5% 0.1W
3123	4822 116 52176	10Ω 5% 0.5W
3124	4822 116 52199	68Ω 5% 0.5W
3125	4822 116 52182	15Ω 5% 0.5W
3126	4822 050 21003	10kΩ 1% 0.6W
3127	4822 116 52289	5.6kΩ 5% 0.5W
3130	4822 051 30479	47Ω 5% 0.062W
3131	4822 051 20471	470Ω 5% 0.1W
3132	4822 051 20479	47Ω 5% 0.1W
3133	4822 117 12925	47kΩ 1% 0.063W 0603
3134	4822 051 30102	1kΩ 5% 0.062W
3135	4822 051 30101	100Ω 5% 0.062W
3136	4822 051 30109	10Ω 5% 0.062W
3137	4822 050 24702	4.7kΩ 1% 0.6W
3138	4822 051 20105	1MΩ 5% 0.1W
3140	4822 051 20223	22kΩ 5% 0.1W
3141	4822 116 52263	2.7kΩ 5% 0.5W
3142	4822 051 30332	3.3kΩ 5% 0.062W
3143	4822 051 30101	100Ω 5% 0.062W
3144	4822 053 10221	220Ω 5% 1W
3150	4822 117 11373	100Ω 1% 0805
3151	4822 051 30109	10Ω 5% 0.062W
3152	4822 051 30102	1kΩ 5% 0.062W
3153	4822 051 20472	4.7kΩ 5% 0.1W
3155	4822 051 30101	100Ω 5% 0.062W
3156	5322 117 13017	100Ω 1% 0.063W 0603
3157	4822 051 30103	10kΩ 5% 0.062W
3158	2322 704 61801	180Ω 1% 0603
3158	5322 117 13061	180Ω 1% 0.063W 0603
3159	4822 051 30103	10kΩ 5% 0.062W
3160	4822 051 30102	1kΩ 5% 0.062W
3161	4822 052 10101	100Ω 5% 0.33W
3164	4822 117 13632	100kΩ 1% 0.62W 0603
3165	2322 704 61801	180Ω 1% 0603
3165	5322 117 13061	180Ω 1% 0.063W 0603
3168	4822 051 20472	4.7kΩ 5% 0.1W
3171	4822 116 52297	68kΩ 5% 0.5W
3172	4822 116 52297	68kΩ 5% 0.5W
3200	4822 051 20229	22Ω 5% 0.1W
3201	4822 051 20229	22Ω 5% 0.1W
3250	4822 117 10833	10kΩ 1% 0.1W
3261	4822 117 11373	100Ω 1% 0805
3262	4822 117 11373	100Ω 1% 0805
3400	4822 052 11108	1Ω 5% 0.5W
3401	4822 053 12279	27R00 5% 3W
3402	4822 053 10121	120Ω 5% 1W
3403	4822 116 52175	100Ω 5% 0.5W
3404	4822 051 30471	470Ω 5% 0.062W
3406	4822 117 11373	100Ω 1% 0805
3407	4822 051 30103	10kΩ 5% 0.062W
3409	4822 050 11002	1kΩ 1% 0.4W
3410	4822 051 20479	47Ω 5% 0.1W
3411	2122 101 02111	39Ω 5% 0,5W
3412	4822 117 11817	1.2kΩ 1% 0.062W
3414	4822 051 30331	330Ω 5% 0.062W
3415	3198 012 31590	15Ω 5% 3W
3417	4822 116 52176	10Ω 5% 0.5W
3418	4822 050 25603	56kΩ 1% 0.6W
3419	4822 051 30474	470kΩ 5% 0.062W
3420	4822 051 30332	3.3kΩ 5% 0.062W
3421	4822 051 30474	470kΩ 5% 0.062W
3422	4822 051 30332	3.3kΩ 5% 0.062W
3423	4822 053 10688	6.8Ω 5% 1W
3425	4822 116 52176	10Ω 5% 0.5W
3426	4822 116 52176	10Ω 5% 0.5W
3427	4822 051 30683	68kΩ 5% 0.062W
3427	4822 117 13632	100kΩ 1% 0.62W 0603
3428	4822 051 30684	680kΩ 5% 0.062W
3429	4822 051 30103	10kΩ 5% 0.062W
3429	4822 051 30223	22kΩ 5% 0.062W
3430	4822 051 30123	12kΩ 5% 0.062W
3430	4822 051 30223	22kΩ 5% 0.062W
3431	2306 207 03151	150Ω 5% 0.5W
3440	4822 051 30102	1kΩ 5% 0.062W
3441	4822 051 30223	22kΩ 5% 0.062W
3442	4822 051 30474	470kΩ 5% 0.062W
3443	4822 051 30684	680kΩ 5% 0.062W
3447	4822 117 11373	100Ω 1% 0805
3449	4822 052 10101	100Ω 5% 0.33W
3450	4822 050 21003	10kΩ 1% 0.6W
3451	4822 050 21003	10kΩ 1% 0.6W
3454	4822 051 20108	1Ω 5% 0.1W
3455	4822 117 12902	8.2kΩ 1% 0.063W 0603
3455	5322 117 13056	8.2kΩ 1% 0.063W 0603
3456	4822 117 12903	1.8kΩ 1% 0.063W 0603
3457	4822 051 30152	1.5kΩ 5% 0.062W
3458	4822 051 30471	470Ω 5% 0.062W
3459	4822 051 30272	2.7kΩ 5% 0.062W
3460	4822 052 10108	1Ω 5% 0.33W
3461	4822 052 10108	1Ω 5% 0.33W
3462	4822 052 11108	1Ω 5% 0.5W
3463	4822 052 11108	1Ω 5% 0.5W
3464	4822 052 11108	1Ω 5% 0.5W
3465	4822 052 11108	1Ω 5% 0.5W
3466	4822 051 30472	4.7kΩ 5% 0.062W
3467	4822 117 13632	100kΩ 1% 0.62W 0603
3472	4822 051 30393	39kΩ 5% 0.062W
3474	4822 051 30563	56kΩ 5% 0.062W
3475	4822 051 30472	4.7kΩ 5% 0.062W
3476	4822 116 83874	220kΩ 5% 0.5W
3478	4822 116 52175	100Ω 5% 0.5W
3479	4822 052 10478	4.7Ω 5% 0.33W
3480	4822 052 10478	4.7Ω 5% 0.33W
3480	4822 052 10688	6.8Ω 5% 0.33W
3481	2322 750 61001	100Ω 5% 1206
3482	4822 051 30221	220Ω 5% 0.062W
3483	4822 117 12903	1.8kΩ 1% 0.063W 0603
3485	4822 051 30471	470Ω 5% 0.062W
3486	2322 704 67502	7.5kΩ 1% 0,5W
3487	5322 117 13056	8.2kΩ 1% 0.063W 0603
3488	4822 050 21005	1MΩ 1% 0.6W
3489	4822 051 30103	10kΩ 5% 0.062W
3490	4822 051 30332	3.3kΩ 5% 0.062W
3491	4822 117 12925	47kΩ 1% 0.063W 0603
3492	4822 116 52175	100Ω 5% 0.5W
3493	4822 050 21504	150kΩ 1% 0.6W
3495	4822 050 21503	15kΩ 1% 0.6W
3496	4822 051 30272	2.7kΩ 5% 0.062W
3497	4822 051 30333	33kΩ 5% 0.062W
3501	2120 103 90057	100Ω 20% 0.5W
3504	4822 051 30222	2.2kΩ 5% 0.062W
3505	4822 116 52257	22kΩ 5% 0.5W
3506	4822 051 30562	5.6kΩ 5% 0.063W 0603
3507	4822 050 21604	160kΩ 1% 0.6W
3508	4822 116 52182	15Ω 5% 0.5W
3509	2122 550 00158	VDR 1mA 612V
3510	5322 117 12487	1kΩ 1% 0.125W
3511	4822 053 11222	2.2kΩ 5% 2W
3512	4822 117 12891	220kΩ 1% 0.063W 0603
3513	4822 116 52272	330k 5% 0.5W
3514	2322 193 53397	0.39Ω 5% 0.6W
3515	2322 193 53397	0.39Ω 5% 0.6W
3517	4822 117 10834	47kΩ 1% 0.1W
3518	4822 116 52234	100kΩ 5% 0,5W
3519	4822 051 30102	1kΩ 5% 0.062W
3520	4822 053 11333	33kΩ 5% 2W
3521	4822 053 21155	1.5Ω 5% 0.5W
3522	4822 117 11507	6.8kΩ 1% 0.1W
3523	4822 051 20105	1MΩ 5% 0.1W
3524	4822 051 30333	33kΩ 5% 0.062W
3525	4822 051 30479	47Ω 5% 0.062W
3527	4822 117 11951	2kΩ 1% 0.1W
3528	4822 051 30103	10kΩ 5% 0.062W
3529	4822 051 30472	4.7kΩ 5% 0.062W
3530	4822 051 30102	1kΩ 5% 0.062W
3531	4822 117 11507	6.8kΩ 1% 0.1W
3532	4822 117 12925	47kΩ 1% 0.063W 0603
3533	4822 116 52182	15Ω 5% 0.5W
3534	4822 117 12925	47kΩ 1% 0.063W 0603
3535	4822 051 30479	47Ω 5% 0.062W
3536	4822 051 30152	1.5kΩ 5% 0.062W
3537	4822 052 10102	1kΩ 5% 0.33W
3540	4822 050 23303	33k 1% 0.6W
3541	4822 116 52186	22Ω 5% 0.5W
3543	4822 050 24708	4.7Ω 1% 0.6W
3547	4822 051 30008	Jumper 0603
3549	4822 051 30393	39kΩ 5% 0.062W
3550	2122 663 00018	PTC 4.7Ω 20%
3552	4822 051 30222	2.2kΩ 5% 0.062W
3553	4822 051 30103	10kΩ 5% 0.062W
3610	4822 051 30223	22kΩ 5% 0.062W
3611	4822 051 30222	2.2kΩ 5% 0.062W
3620	4822 050 21808	1.8Ω 1% 0,6W
3620	4822 116 80176	1Ω 5% 0.5W
3621	4822 116 80176	1Ω 5% 0.5W
3622	4822 116 81154	2.2Ω 5% 0.5W
3622	5322 116 53564	3.3Ω 5% 0.5W
3623	4822 116 52251	18kΩ 5% 0.5W
3624	4822 052 10158	1.5Ω 5% 0.33W
3625	4822 116 52206	120Ω 5% 0.5W
3625	4822 116 52219	330Ω 5% 0.5W
3626	4822 116 52175	100Ω 5% 0.5W
3626	4822 116 52219	330Ω 5% 0.5W
3627	4822 051 20223	22kΩ 5% 0.1W
3630	4822 051 30333	33kΩ 5% 0.062W
3631	4822 051 30222	2.2kΩ 5% 0.062W
3632	4822 051 30393	39kΩ 5% 0.062W
3633	4822 051 30563	56kΩ 5% 0.062W
3634	4822 116 83882	39kΩ 5% 0.5W
3635	4822 116 52219	330Ω 5% 0.5W
3636	4822 051 30223	22kΩ 5% 0.062W
3637	4822 051 30103	10kΩ 5% 0.062W
3638	4822 051 30474	470kΩ 5% 0.062W
3639	4822 051 30563	56kΩ 5% 0.062W
3640	4822 051 30222	2.2kΩ 5% 0.062W
3641	4822 116 83883	470Ω 5% 0.5W
3642	4822 101 11193	47kΩ 30% 0.1W
3643	4822 051 30334	330kΩ 5% 0.062W
3644	4822 051 30221	220Ω 5% 0.062W
3645	4822 116 52245	150kΩ 5% 0.5W
3646	4822 117 12925	47kΩ 1% 0.063W 0603
3647	4822 051 20228	2.2Ω 5% 0.1W
3652	4822 051 20479	47Ω 5% 0.1W
3653	4822 051 20223	22kΩ 5% 0.1W
3655	4822 051 30123	12kΩ 5% 0.062W
3656	4822 117 11817	1.2kΩ 1% 0.062W
3657	4822 051 30223	22kΩ 5% 0.062W
3658	4822 051 30223	22kΩ 5% 0.062W
3659	4822 051 30222	2.2kΩ 5% 0.062W
3660	4822 051 30562	5.6kΩ 5% 0.063W 0603
3661	4822 116 52226	560Ω 5% 0.5W
3662	4822 051 30152	1.5kΩ 5% 0.062W
3681	4822 116 52207	1.2kΩ 5% 0.5W
3682	4822 117 13632	100kΩ 1% 0.62W 0603
3683	4822 051 30103	10kΩ 5% 0.062W
3684	4822 051 30682	6.8kΩ 5% 0.062W
3685	4822 051 30273	27kΩ 5% 0.062W
3686	4822 051 30563	56kΩ 5% 0.062W
3687	4822 116 52207	1.2kΩ 5% 0.5W
3688	4822 051 20684	680kΩ 5% 0.1W
3690	4822 051 30109	10Ω 5% 0.062W
3701	4822 051 30103	10kΩ 5% 0.062W
3701	4822 117 12925	47kΩ 1% 0.063W 0603
3702	4822 051 30223	22kΩ 5% 0.062W
3703	4822 051 30103	10kΩ 5% 0.062W
3703	4822 117 12925	47kΩ 1% 0.063W 0603
3704	4822 051 30223	22kΩ 5% 0.062W
3707	4822 051 30103	10kΩ 5% 0.062W
3708	4822 117 12925	47kΩ 1% 0.063W 0603
3710	4822 117 12925	47kΩ 1% 0.063W 0603
3711	4822 051 30103	10kΩ 5% 0.062W
3713	2322 702 81828	8.2Ω 5% 0.1W 0603
3714	2322 702 81828	8.2Ω 5% 0.1W 0603
3716	4822 050 21003	10kΩ 1% 0.6W
3719	4822 051 30103	10kΩ 5% 0.062W
3720	4822 052 10108	1Ω 5% 0.33W
3721	4822 052 10108	1Ω 5% 0.33W
3725	4822 116 52251	18kΩ 5% 0.5W
3726	4822 050 21003	10kΩ 1% 0.6W
3904	4822 052 10688	6.8Ω 5% 0.33W
3905	4822 051 30101	100Ω 5% 0.062W
3912	4822 051 30008	Jumper 0603
3928	4822 051 30101	100Ω 5% 0.062W
3929	4822 051 30103	10kΩ 5% 0.062W
3930	4822 051 20561	560Ω 5% 0.1W
3938	4822 117 11373	100Ω 1% 0805
3939	4822 051 30103	10kΩ 5% 0.062W
3940	4822 051 20561	560Ω 5% 0.1W
3941	4822 052 10688	6.8Ω 5% 0.33W
3959	4822 117 10353	150Ω 1% 0.1W
3960	4822 117 10353	150Ω 1% 0.1W
3961	4822 117 10353	150Ω 1% 0.1W
3962	4822 117 10353	150Ω 1% 0.1W
3965	4822 117 10353	150Ω 1% 0.1W
3966	4822 117 10353	150Ω 1% 0.1W
3967	4822 116 52201	75Ω 5% 0.5W
3968	4822 116 52201	75Ω 5% 0.5W
3969	4822 051 20008	Jumper 0805
3969	4822 117 11373	100Ω 1% 0805
3970	4822 051 20008	Jumper 0805
3970	4822 117 11373	100Ω 1% 0805
3971	4822 116 52201	75Ω 5% 0.5W
3972	4822 116 52201	75Ω 5% 0.5W
3973	4822 116 52201	75Ω 5% 0.5W
3974	4822 116 52201	75Ω 5% 0.5W
3975	4822 116 52201	75Ω 5% 0.5W
3976	4822 117 11373	100Ω 1% 0805
3977	4822 051 20008	Jumper 0805
3977	4822 117 11373	100Ω 1% 0805
3978	4822 051 20008	Jumper 0805
3978	4822 117 11373	100Ω 1% 0805
3979	4822 116 52201	75Ω 5% 0.5W
3980	4822 051 20008	Jumper 0805
3980	4822 117 11373	100Ω 1% 0805
3981	4822 051 10102	1kΩ 2% 0.25W
3981	4822 117 10833	10kΩ 1% 0.1W
3982	4822 051 20392	3.9kΩ 5% 0.1W
3982	4822 051 20393	39kΩ 5% 0.1W
3983	4822 116 52175	100Ω 5% 0.5W
3984	4822 051 10102	1kΩ 2% 0.25W
3984	4822 117 10833	10kΩ 1% 0.1W
3985	4822 116 52201	75Ω 5% 0.5W
3986	4822 116 52276	3.9kΩ 5% 0.5W
3986	4822 116 83882	39kΩ 5% 0.5W
3987	4822 116 52175	100Ω 5% 0.5W
3988	4822 051 10102	1kΩ 2% 0.25W
3988	4822 117 11373	100Ω 1% 0805
3989	4822 050 11002	1kΩ 1% 0.4W
3989	4822 116 52175	100Ω 5% 0.5W
3990	4822 117 10353	150Ω 1% 0.1W
3991	4822 117 10353	150Ω 1% 0.1W

9.4 Abbreviation List

0/6/12	SCART switch control signal on A/V board. 0 = loop through (AUX to TV), 6 = play 16:9 format, 12 = play 4:3 format
2CS	2 Carrier Sound
A2	Commonly known as 2 Carrier Sound (2CS) system
AC	Alternating Current
ACI	Automatic Channel Installation: algorithm that installs TV channels directly from a cable network by means of a predefined TXT page
ADC	Analogue to Digital Converter
ADOC	Analogue Digital One Chip
AFC	Automatic Frequency Control: control signal used to tune to the correct frequency
AGC	Automatic Gain Control: algorithm that controls the video input of the feature box
AM	Amplitude Modulation
ANC	Automatic Noise Reduction; One of the algorithms of Auto TV
AP	Asia Pacific
AR	Aspect Ratio: 4 by 3 or 16 by 9
ASD	Automatic Standard Detection
AUDIO-SL	Audio Surround Left
AV	Audio Video
AVL	Automatic Volume Level control
B-SC1-IN	Blue SCART1 in
B-SC2-IN	Blue SCART2 in
B-TXT	Blue teletext
B/G	Monochrome TV system. Sound carrier distance is 5.5 MHz
BBD	Black Bar Detection
BCL	Beam Current Limiter
BC-PROT	PROTection signal to the microprocessor in case of a too high Beam Current.
BLC-INFO	BLack Current INFO.
BLD	BLack Level Detection.
BS	BLack Stretch.
BTSC	Broadcast Television Standard Committee; Multiplex FM stereo sound system, originating from the USA and used e.g. in LATAM and AP-NTSC countries.
C	Centre channel (audio) or Chroma; The NTSC/PAL/SECAM video signal contains two parts that make up what we see on the display; the luminance (or intensity) part and the colour (or chroma) part
CBA	Circuit Board Assembly (or PWB)
CL	Constant Level: audio output to connect with an external amplifier
CLUT	Colour Look Up Table
ComPair	Computer aided rePair
CRT	Cathode Ray Tube (or picture tube)
CSM	Customer Service Mode
CTI	Colour Transient Improvement; Manipulation of the steepness of the chroma transients
CVBS	Composite Video Blanking and Synchronisation
CVBS-EXT	CVBS signal from external source (VCR, VCD, etc.)
CVBS-INT	CVBS signal from Tuner
CVBS-MON	CVBS monitor signal
CVBS-TER-OUT	CVBS terrestrial out
CVI	Component Video Input
D/K	Monochrome TV system. Sound carrier distance is 6.5 MHz. D= VHF-band, K= UHF-band
DAC	Digital to Analogue Converter
DAF	Dynamic Astigmatism and Focusing; a method to keep the electron spot round and focused during the whole scan
DBE	Dynamic Bass Enhancement; extra low frequency amplification
DC	Direct Current
DCC	Dynamic Contrast Control
DC-filament	Filament supply voltage
DEGAUSS	Control line. Logic LOW to enable CRT degaussing. Logic HIGH to disable the CRT degaussing.
DFU	Directions For Use: owner's manual
DNR	Digital Noise Reduction; Noise reduction feature of the set / Dynamic Noise Reduction
DNR	Digital Noise Reduction; Noise reduction feature of the set / Dynamic Noise Reduction
DOP	Digital Output Processor (Part of ADOC which takes care of RGB control and deflection)
DPL	Dolby Pro Logic
DPL	Dolby Pro Logic
DRAM	Dynamic RAM; dynamically refreshed RAM
DRAM	Dynamic RAM; dynamically refreshed RAM
DS	Digital Scan
DSP	Digital Signal Processing
DST	Dealer Service Tool; Special remote control designed for dealers to enter e.g. service mode (a DST-emulator is available in ComPair)
DTS	Digital Theatre Sound
DVD	Digital Versatile Disc
DVI(-d)(-i)	Digital Visual Interface (d= digital only) (i= integrated); A digital video interface to a display, designed to replace the analogue YPbPr or RGB interface
DW	Double Window
DYN-FASE-COR	Dynamic phase correction, to correct the phase of the H-drive
EEPROM	Electrically Erasable and Programmable Read Only Memory
EHT	Extreme High Tension; the voltage between the cathode and the shadow mask that accelerates the electrons towards the screen (around 25 kV)
EHT-INFO	Extra High Tension INFOrmation, used for contrast reduction, vertical and horizontal amplitude correction, beam current protection, and flash detection
EMI	Electro Magnetic Interference; Leakage of high-frequency radiation from a transmission medium
EPG	Electronic Program Guide; System used by broadcasters to transmit TV guide information (= NexTView)
EPLD	Erasable Programmable Logic Device
EU	EUrope
EW	East West, related to horizontal deflection of the set
EW-DRIVE	East -West correction drive signal.
EXT	EXTernal (source), entering the set by SCART or by cinches (jacks)
FBL	Fast Blanking: DC signal accompanying RGB signals
FBL-SC1-IN	Fast blanking signal for SCART1 in
FBL-SC2-IN	Fast blanking signal for SCART2 in
FBL-TXT	Fast Blanking Teletext
FBX	Feature BoX; Part of the small signal board /separate module which contains 100 Hz processing, extra features and AutoTV algorithms (FBX6= based on PICNIC, FBX7= based on PICNIC and Eagle, FBX8= based on PICNIC, Eagle, and Columbus)
FE	Front End; Tuner and RF part together
FLASH	FLASH memory
Field	Each interlaced broadcast FRAME is composed of two Fields, each Field consists of either Odd or Even lines
Filament	Filament of CRT
FLASH	FLASH memory
FM	Field Memory / Frequency Modulation
FM-Radio	Radio receiver that can receive the FM Band 87.5 - 108 MHz
FMR	FM Radio
Frame	A complete TV picture comprising all lines (625/525)
FRAMEDRIVE -	Differential frame (vertical) drive signal (negative)
FRAMEDRIVE +	Differential frame (vertical) drive signal (positive)
FRC	Frame Rate Converter
FRONT-C	Front input chrominance (SVHS)
FRONT-DETECT	Control line for detection of headphone insertion, Service Mode jumper, power failure detection
FRONT-Y_CVBS	Front input luminance or CVBS (SVHS)
FTV	Flat TeleVision
G	Green
G-SC1-IN	Green SCART1 in
G-SC2-IN	Green SCART2 in
G-TXT	Green teletext
Gb/s	Giga bits per second
H	H_sync to the module
H-2FH	Horizontal sync input for the 2fH source
H-A50	Horizontal Acquisition 1fH: horizontal sync pulse coming out of the HIP
H-D100	Horizontal Drive 2fH; Horizontal sync pulse coming out of the Feature Box
H-DRIVE	Horizontal Drive
H-FLYBACK	Horizontal Flyback
H-OUT	H_sync output of the module / Horizontal Output pulse
HA	Horizontal Acquisition; horizontal sync pulse
HD	High Definition: 720p, 1080i, 1080p
HDMI	High Definition Multimedia Interface, digital audio and video interface
HEADPHONE-L	Stereo headphone (Left) signal output.
HEADPHONE-R	Stereo headphone (Right) signal output.
HFB	Horizontal Flyback Pulse; Horizontal sync pulse from large signal deflection
HP	Head Phone
HW	Hardware
I	Monochrome TV system. Sound carrier distance is 6.0 MHz. VHF- and UHF-band
I^2C	Inter IC bus (also called IIC)
I^2S	Inter IC Sound bus
IC	Integrated Circuit
IDRIVE-	Vertical drive -
IDRIVE+	Vertical drive +
IF	Intermediate Frequency
IF-TER	IF signal from main tuner
IIC	Inter IC bus (also called I2C)
Interlaced	Scan mode where two fields are used to form one frame. Each field contains half the number of the total amount of lines. The fields are written in "pairs", causing line flicker.
IO	In/Out
IR	Infra Red
IROM	Internal ROM (inside the microcontroller)
IRQ	Interrupt ReQuest
ITV	Institutional TV
JTAG	Joint Test Action Group; Definition for a standardised serial test interface
KEYB	Front panel keyboard
KEYBOARD	Input line. Carries the voltage value of the corresponding tact switch on TOP-control or FRONT-control keypad
L	Left audio channel
L/L'	Monochrome TV system. Sound carrier distance is 6.5 MHz. L' is Band I, L is all bands except for Band I
Last Status	The settings last chosen by the customer and read and stored in RAM or in the NVM. They are called at start-up of the set to configure it according to the customer's preferences
LATAM	LATin AMerica
LCD	Liquid Crystal Display
L-CL_VLOUT	REAR CINCH stereo output
LED	Light Emitting Diode
LFE	Low Frequency Enhancement audio channel
L-FRONT-IN	EXT3 stereo input
LIGHT-SENSOR	Ambient light intensity signal.
LINE DRIVE	Horizontal (line) deflection drive signal (for the Line transistor)
LNA	Low Noise Adapter / Low Noise Amplifier
LOT	Line Output Transformer (also called FBT); The transformer in which the EHT is generated
LS	Loud Speaker
Ls, Rs	Left surround and Right surround channel (audio)
LSP	Large Signal Panel
Lt, Rt	Left total and Right total in case of a Dolby ProLogic encoded signal (audio)
LTI	Luminance Transient Improvement
LTP	Luminance Transient Processor
LUT	Look Up Table
LVDS	Low Voltage Differential Signalling, data transmission system for high speed and low EMI communication.
M/N	Monochrome TV system. Sound carrier distance is 4.5 MHz. M= 525 lines @ 60 Hz, N= 625 lines @ 50 Hz
Mb/s / Mbps	Mega bits per second
MCS	Multi Channel Sound: refers to Dolby Pro Logic Surround in ES1E ADOC
MDO	Mode control data output
MIPS	Microprocessor without Interlocked Pipeline-Stages; A RISC-based microprocessor
Mips	Million instructions per second
MMI	Multi Media Interface
MOSFET	Metal Oxide Semiconductor Field Effect Transistor
MPEG	Motion Pictures Experts Group
MPIF	Multi Platform InterFace (Part of Salsa chipset, sister-chip of ADOC IC)
MPIP	Multi Picture in Picture; Commercial feature showing several frozen or moving pips
MPX	MultiPleX
MSP	Multi-standard Sound Processor: ITT sound decoder

beginning of the start-up phase, the driver receives its +5V supply via 3421 and 6465 (see circuit diagram A2). During the slow start-up phase, the LOT 5450 pin9 voltage gradually increases, and finally takes over the supply of the +5V voltage, to supply 5402/7404 via 6403/3493/3451/3419/3432/3415/3414.

At the end of the slow start-up phase, the deflection stage is operating at its normal operating condition and all the voltages are stabilized. Then, the +13V volt supply has fully replaced the +5V supply to power the horizontal output stage.

At that moment, not only the horizontal deflection, but also the vertical deflection is functioning at its normal operating conditions.

9.2.3 Normal Operation and Horizontal Deflection

In normal operation mode, the Hdrive with its 45/55 duty cycle is switching on and off 7404 (see circuit diagram A2). The driver stage is working in flyback mode: When 7404 is on, 5402 retains its flux energy and also switches off 7405 via its secondary coil during flyback mode. When 7404 is switched off, 5402 releases its energy and turns on 7405. By means of the on-off switching process, a sawtooth yoke deflection current is generated.

There are various circuits that are part of the horizontal deflection circuit.
These will be discussed below:

Horizontal Output Stage:
This a standard circuit (see circuit diagram A2), in which the main horizontal output stage consists of driver 7404/5402, line output transistor 7405, tuning capacitor 2411/2414, Scap 2417/2418 and diode modulator 6404/2413/2416.

Anti-Curtain Effect (Anti-Beta Ringing) Circuit:
5410/2427/3433 (see circuit diagram A2) are the anti-beta ringing circuit that is tuned to and suppresses the parasitic ringing frequencies normally occurring in Slot type LOTs to an acceptable level. For Layer type LOTs, these components are not required and 9410 is the jumper alternative for Layer type LOTs.

Beta Ringing, if not suppressed, will cause a type of interference which is visible as a curtain effect at the left edge of the screen. This interference is caused by the high amplitude ringing energy being coupled magnetically or via an electrically conducting path from the LOT to the small signal circuit. If the ringing is suppressed to a specific level, the interference will not be visible anymore.

DAF Circuit:
5455/2402/2403/2405/2406 (see circuit diagram A2) are the DAF circuit that will be used in DAF or double focus CRT tubes. For single focus tubes, these components are not required; 9411 is the jumper alternative for non-DAF tubes.

The DAF circuit is used to improve the dynamic focusing of the tube, particularly in the edge areas. The DC high voltage of constant level which is supplied to the focus electrode is referred to as static focus or single focus. In addition to that, an AC parabolic waveform (derived from the vertical and/or the horizontal deflection voltages) can be superimposed onto the DC static focus voltage; this extra AC focusing voltage will then correct the focus dynamically, corresponding to the scan position at that particular moment. This is what we refer to as DAF (Dynamic Astigmatism and Focusing; a method to keep the electron spot round and focused during the whole scan).

Transformer 5455 takes the horizontal deflection current as its input and transfers its energy to the capacitor (2402/2403/2405/2406) on its secondary side. The current in the secondary coil of the transformer charges the capacitor and this results in a parabolic waveform. The parabolic waveform is fed to connector 1402 of the LOT focus cable and is coupled via an internal 500 pF capacitor inside the LOT and superimposed onto the static focus voltage.

2nd order S-correction circuit:
5406/2407/3403 (see circuit diagram A2) are the 2nd order S-correction circuit, which is used mainly in large wide screen tubes, because they are prone to scanning imperfections that need 2nd order S-correction. For 4x3 tubes or relatively small wide screen tubes, these components are not required, and then 9401 is the jumper alternative for them.

Due to the relatively wide angle of large wide screen flat tubes, the inner tube surface (which is flat) and the surface scanned by the electron beam (which is spherical) are very far apart, especially at the edges. This is because both areas are nowhere parallel with respect to each other (as they ideally would have to be). The larger and wider the screen size is, the more visible the unwanted phenomenon resulting from this optical misalignment will be. The phenomenon manifests itself, because the horizontal scanning will be wider at the 1/4 and 3/4 position, but narrower at the centre and edge position. Note that this is different from S-correction (correct centre-versus-edge scanning) and Linearity Correction (correct left-versus-right scanning).

To carry out the 2nd order S-correction, transformer 5406 takes the horizontal deflection current as its input and transfers it to capacitor 2407 on its secondary side. Together with the yoke coil, capacitor 2407 forms a tuning circuit, and this circuit modifies the yoke current during the 1/4 and 3/4 scanning position. In this way, the modified yoke currect compensates the imperfections that are caused by the CRT geometry.

The function of resistor 3403 is to prevent the secondary circuit from floating. It pulls DC components of the correction voltages to gnd.

Dynamic S-correction Circuit (Inner-Pincushion):
5408/5409/2419 (see circuit diagram A2) form the dynamic S-correction circuit, which is mainly used in relatively large wide screen tubes. This is, because they are prone to optical inner pincushion distortions. For 4x3 tubes or relatively small wide screen tubes, these components are not required; in that case, 9412 is the jumper alternative for them.

As has been explained earlier, due to the relatively wide angle of large wide screen flat tubes, the inner tube surface (flat) and the scanning surface (spherical) can never be perfectly parallel to each other, so optical distortions will be the result, especially at the edges of the screen. The first imperfection that will become visible is the phenomenon called pin-cushion distortion; this can be corrected by the East West circuit for distortions in the proportions of the top/bottom versus centre area (distortions in the proportions in the vertical direction have to be corrected as well, see further down in this text).

Additionally, the larger and wider the screen size becomes, the more clearly a second unwanted phenomenon will become visible, called inner pincushion distortion. This happens because, when two corresponding horizontal scanning lines are compared, the top one and the centre one will have different centre-versus-edge scanning length ratios (when the vertical line at the edge of the screen has been corrected by the East West circuit, the vertical lines at the 1/4 and 3/4 positions will still be concave. Note that this phenomenon is different from 2nd-order S-distortion.)

To correct the dynamic S-distortion, the East West correction circuit has to generate a deflection current which is higher at the centre scanning position of the screen than at the top/bottom positions. With the Bridge coil 5408/5409, this higher

extra current generates a parabolic waveform across 2419 at the centre scanning position. The parabolic waveform is superimposed (series-added) onto the S-cap voltage (2417/2418); in this way, a more parabolic waveform is obtained which corrects the inner pincushion distortion.

East West correction Circuit:
Together with diode modulator 2413/2416/6404, components 6471/7406/3425/2425 form the main East-West correction circuit. The circuit is a current drive circuit driven by MOSFET 7406. 3425 and 2425 function as a simple RC filter with the task of filtering the horizontal pulses in the diode modulator stage. The parabolic current source for the EW-drive comes from the SSB and modulates the diode modulator voltage by means of 7406. Because 7406 is in series with Scap 2417/2418), the diode modulator voltage plus the Scap voltage are always equal to Vbatt. So, by modulating the diode modulator voltage, we are able to modulate the Scap voltage, and so the deflection current and scanning width as well.

EHT-info Compensation:
In addition to the EHT-info compensation feedback to the SSB IC, components 3422/3423/6424/3424/3435/6425/3437/2437/2422 are the EHT-info compensation circuit that injects beam information into the East-West correction circuit to achieve better compensation.

Waveform "EHT-info" is a voltage source which is derived from Ibeam; the voltage is injected via the EHT-info compensation circuit mentioned above, and modulates the East West circuit.

Beam Current and Horizontal Flyback:
The beam current is determined by 3480/3491/3453/3492/6478 (see circuit diagram A2), while 2450/2451 filters out the high frequency info.

The horizontal flyback circuit is provided with an X-ray protection function; for this reason the combined circuit bears the name Hfb_Xray_Prot. Hfb is derived from the heater pulses via 2477 and 2476 and clamped by 3477/6474. The protection is realized by 7486. The SSB monitors the Hfb_Xray_Prot voltage and will go into protection mode if this voltage is low without pulses.

9.2.4 Vertical Deflection

IC 7455 (see circuit diagram A2) is the differential vertical deflection amplifier. The amplification gain is determined only by 3461/3476 and 3470/3471/3472. The SSB IC output is a differential vertical current source to 7455 and its signal is amplified and output as a vertical deflection current through the vertical yoke coil.

IC 7455 has a separate flyback supply (on its VFB pin) which is tapped from the positive portion of the heater voltage. The flyback heater voltage charges 2461 via 6476/3487 and is clamped by 6458.

The vertical scanning voltage (on pin V-OUT of 7455) varies between +13V and -14V.

Components 3466/2468 are for pole-zero compensation purposes and suppress oscillation tendencies.

Components 3467/3468 suppress horizontal coupling, and also suppress noise.

Components 3459/6459 are part of the circuit which protects the CRT tube from burning in, in case someone accidentally unplugs the vertical yoke or disconnects the power supply of 7455. Without this protection, the picture tube neck may be damaged if the vertical scanning circuit is not working and all the beam energy is concentrated on one spot of the CRT neck.

The function of diode 6457 is to isolate the small signal supply from the flyback supply boost up voltages.

9.2.5 Protection

The protections are realized by 7407/7456/7486. All the protection voltages coming from the various protection circuits like: the vertical protection (3459/6459), the bridge coil protection (5411/6405/3479), the X-ray protection (6480/7408/3460/3462/3465/3469) and the East West protection (7403/3473/3488/3417/2495) are combined in 7407/7456/7586.

If a protection circuit is triggered, the protection triggering voltage will turn on 7407 and consequently 7486, which will pull the Hfb-Xray_Prot voltage low. The SSB will respond to this triggering signal and will shut down the deflection circuit

9.3 Software Upgrading

In this chassis, you can **upgrade** the software via ComPair. This offers the possibility, to replace the entire SW image without having to remove the flash-RAM from its socket. You can find more information on how this procedure works in the ComPair file. It is possible that not all sets are equipped with the hardware, needed to make software upgrading possible. To speed up the programming process, the firmware of the ComPair interface can be upgraded. See Chapter "Service Modes ..."; paragraph "ComPair" - "How To Order" for the order number.

11. Revision List

Manual xxxx xxx xxxx.0

- First release.